PART I

ADDENDUM PAGES

06/29/07

PLEASE

REMOVE PAGE APP 5-3 FROM YOUR SPECIFICATION MANUAL.

PART II

ADDENDUM PAGES

06/29/07

CHESTERFIELD COUNTY
DEPARTMENT OF PUBLIC UTILITIES

CARRIER PIPE DIA.	CASING PIPE				
	DIAMETER	MINIMUM WALL THICKNESS			
		CRITERIA WITHIN RAILROAD RIGHT OF WAY		CRITERIA WITHIN VDOT RIGHT OF WAY	
		R.C.P. WITH PROTECTIVE COATING	STEEL WITH PROTECTIVE COATING	R.C.P.	STEEL
6″	16″	3.0″	0.281″	3.0″	0.250″
8″	20″	3.0″	0.375″	3.0″	0.250″
10″	20″	3.0″	0.375″	3.0″	0.250″
12″	24″	3.5″	0.375″	3.5″	0.250″
15″	24″	3.5″	0.375″	3.5″	0.250″
✳ 16″	30″	4.0″	0.500″	4.0″	0.375″
18″	30″	4.0″	0.500″	4.0″	0.375″
20″	30″	4.0″	0.500″	4.0″	0.375″
21″	30″	4.0″	0.500″	4.0″	0.375″
24″	36″	4.5″	0.563″	4.5″	0.375″
30″	42″	5.0″	0.625″	5.0″	0.500″
33″	42″	5.0″	0.625″	5.0″	0.500″
36″	48″	5.5″	0.688″	5.5″	0.500″
42″	54″	6.0″	0.781″	6.0″	0.500″

REINFORCED CONCRETE CASING PIPE SHALL BE ASTM C-76, CLASS III.
STEEL CASING PIPE SHALL BE ASTM 1-139, GRADE B.

NOTES:

A. Slopes through bores shall not be based on minimum grade unless it is the only slope available.

B. Increasing thickness of casing must be considered where bore lengths exceed 125'.

C. When using steel casing, a minimum of .3125" thickness is required where ground cover over pipe exceed 15'.

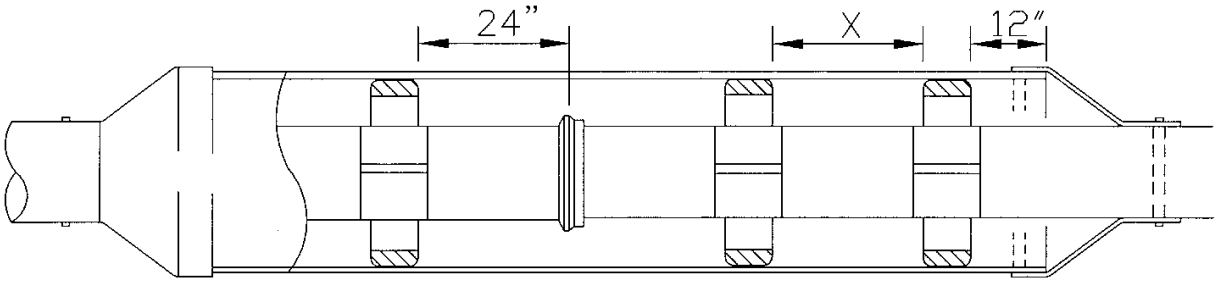
D. Contractor shall make an effort to bore in the appropriate direction based on existing soil conditions. Engineer must show location and size of bore pit; and location and size of permanent and construction easement.

E. Where restraining devices are required for the carrier pipe, the casing pipe shall be increased as necessary.

✳ Where pipe is restrained, approved restrained joint pipe may be used in a 24"casing pipe to avoid having to install a 30"casing pipe.

DATE		DRWG. NO.
JAN. 1996	CASING PIPE REQUIREMENTS	CAS-1
REVISIONS JUNE 2007		

CHESTERFIELD COUNTY
DEPARTMENT OF PUBLIC UTILITIES

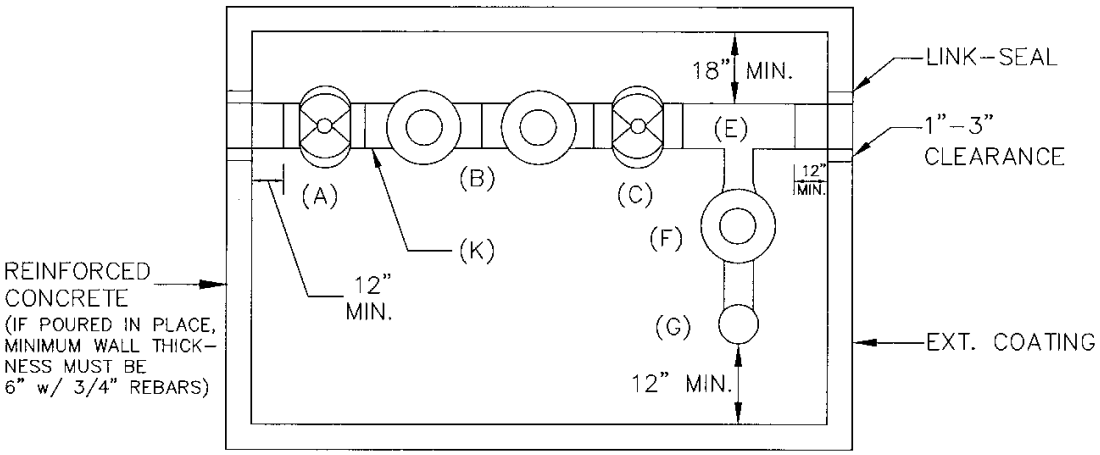


CASING DETAIL NOTES:

1. CARRIER PIPE SHALL BE CENTERED WITHIN CASING BY AN APPROVED STAINLESS STEEL CASING SPACER.
2. CASING PIPE SHALL BE SEALED BY USE OF WRAPAROUND END SEALS OR WRAP ENDS OF CARRIER PIPE WITH TAR PAPER AND INSTALL 4" THICK BRICK AND MORTAR PLUG IN THE ANNULAR SPACE A 1" WEEP HOLE.
3. THREE CASING SPACERS SHALL BE ATTACHED TO EACH JOINT OF CARRIER PIPE WITH ONE AT THE CENTER AND ONE NOT MORE THAN 24" FROM EACH END.
4. ONE CASING SPACER SHALL BE LOCATED NOT MORE THAN 12" FROM EACH END OF CASING PIPE.
5. VALVES OR OTHER CONTROL/MAINTENANCE EQUIPMENT ATTACHED TO WATERLINE/ SEWER FORCE MAINS SHALL BE LOCATED A MINIMUM FOUR PIPE LENGTHS FROM THE END OF THE CASING, OR AS APPROVED BY THE COUNTY.
6. STEEL CASING SHALL HAVE A MINIMUM YIELD STRENGTH OF 35,000 PSI AND SUFFICIENT CORROSION PROTECTION.
7. LINES TO BE ENCASED UNDER STATE ROADS/RAILROADS WILL COMPLY WITH COUNTY AND ANY APPLICABLE VDOT/AMERICAN RAILROAD ENDINEERING SPECIFICATIONS WHICHEVER IS MORE STRINGENT.
8. WHEN INSTALLING CARRIER PIPE, CONTRACTOR SHALL PUSH SO THAT PIPE JOINTS ARE ALWAYS BEING COMPRESSED.
9. REINFORCED CONCRETE CASING PIPE SHALL BE ASTM C-76, CLASS III STEEL CASING PIPE SHALL BE ASTM-139, GRADE B.
10. ALL WATERLINES IN CASING SHALL BE A MINIMUM CLASS 51 DUCTILE IRON WITH M.J. BELLS AND AN APPROVED MECHANICAL JOINT RESTRAINT DEVICE AT EACH M.J. CONNECTION. MINIMUM 3 JOINTS OUTSIDE EACH END OF CASING SHALL BE M.J. DUCTILE IRON WITH RESTRAINED JOINTS. AS AN ALTERNATIVE, APPROVED RESTRAINED JOINT PIPE MAY BE USED.

DATE	CASING DETAIL FOR	DRWG. NO.
JAN. 1996	WATER LINES & SEWER FORCE MAINS	CAS-4
REVISIONS JUNE 2007		

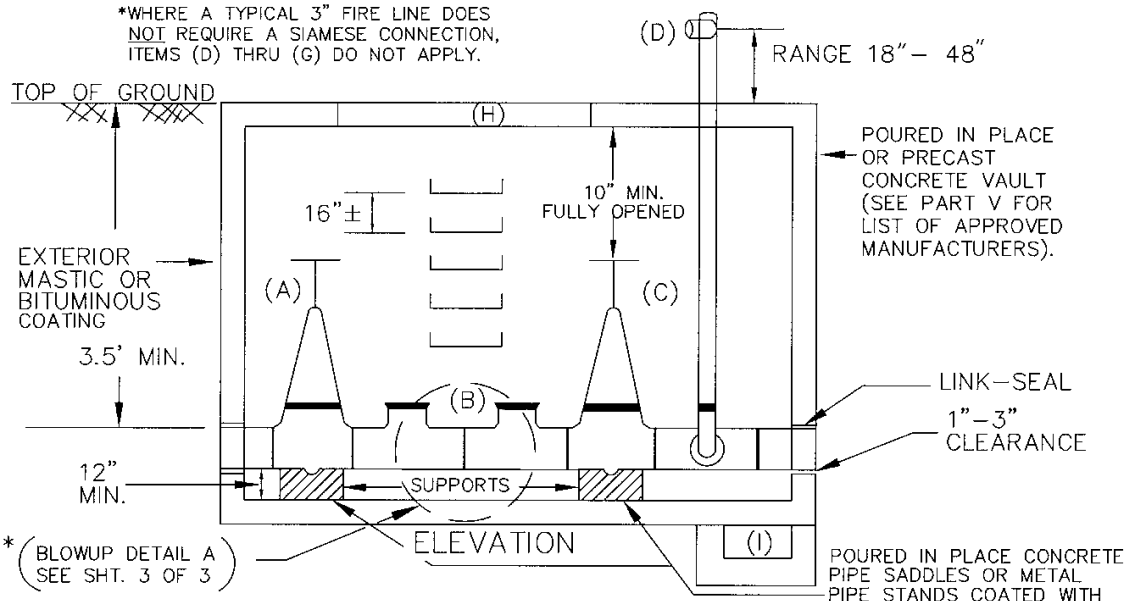
CHESTERFIELD COUNTY
DEPARTMENT OF PUBLIC UTILITIES



PLAN

(A) OUTSIDE STEM AND YOKE GATE VALVE
(B) DOUBLE CHECK VALVE ASSEMBLY
(C) OUTSIDE STEM AND YOKE GATE VALVE
* (D) 2 1/2" THREADED N.S.T. SIAMESE CONNECTION FOR FIRE DEPARTMENT W/AUTOMATIC BALL DRIP
* (E) REQUIRED (MAIN LINE SIZE) " X 4"
* (F) 4" CHECK VALVE
*(G) 4" - 90° BEND
(H) JD-2AL 4' X 4' BILCO DOOR, OR APPROVED EQUAL.
(I) SUMP WHERE WATER TABLE IS A PROBLEM OR GRAVITY DRAIN WHERE WATER TABLE IS NOT A PROBLEM. (SEE SUMP DETAIL WAT-19)
** (J) BYPASS LINE W/DETECTOR METER & BACKFLOW PREVENTER
(K) SAMPLING POINT

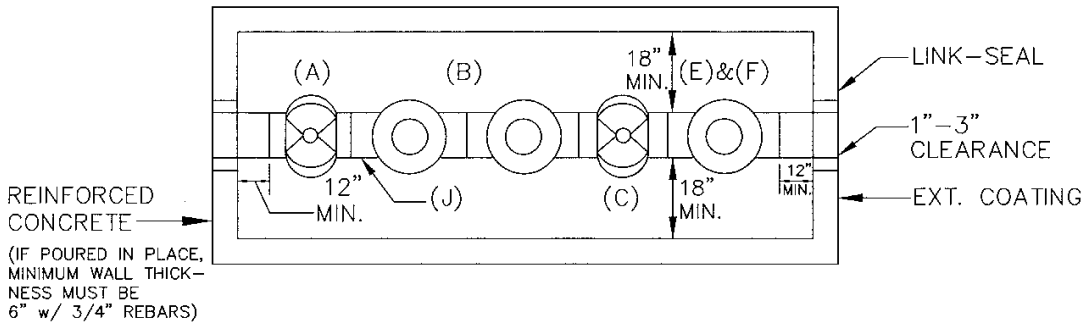
*WHERE A TYPICAL 3" FIRE LINE DOES NOT REQUIRE A SIAMESE CONNECTION, ITEMS (D) THRU (G) DO NOT APPLY.



FOR ADDITIONAL INFORMATION ON REVIEW, DESIGN AND CONSTRUCTION, SEE PART IV, & PART V OF THE SPECIFICATIONS.

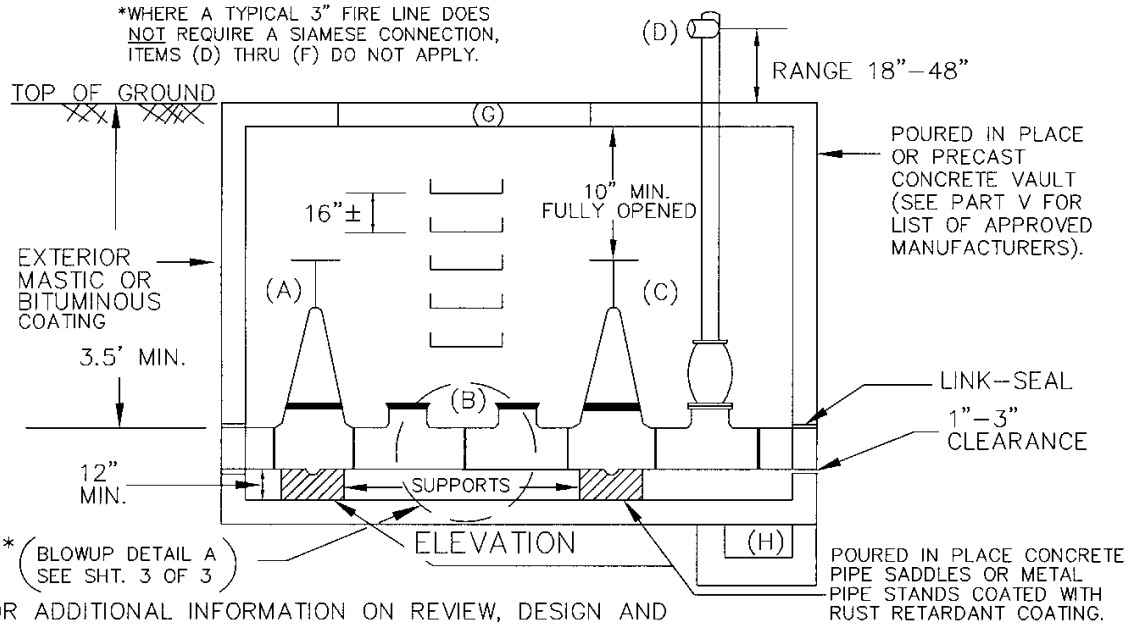
DATE: JAN. 1996	3" OR LARGER DOUBLE CHECK ASSEMBLY AND VAULT (Alternate 1)	DRWG. NO. FIR-3 SHT. 1 OF 3
REVISIONS: JUNE 2007		

CHESTERFIELD COUNTY
DEPARTMENT OF PUBLIC UTILITIES



PLAN

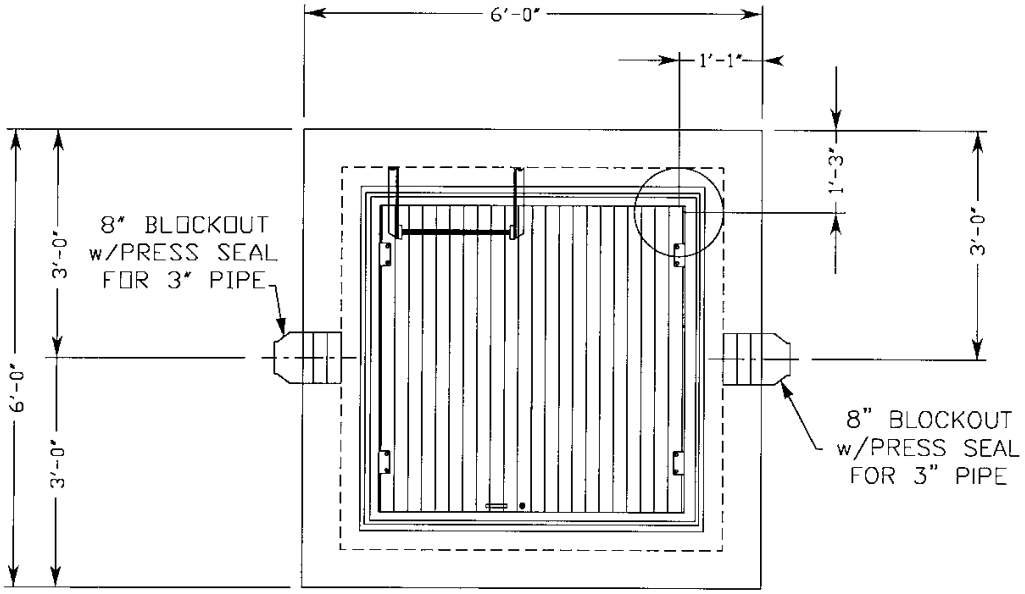
(A) OUTSIDE STEM AND YOKE GATE VALVE
(B) DOUBLE CHECK VALVE ASSEMBLY
(C) OUTSIDE STEM AND YOKE GATE VALVE
* (D) 2 1/2" THREADED N.S.T. SIAMESE CONNECTION FOR FIRE DEPARTMENT W/AUTOMATIC BALL DRIP
* (E) REQUIRED (MAIN LINE SIZE) " X 4"
* (F) 4" FIRE PROTECTION CHECK VALVE – Fig. 590F AS MANUFACTURED BY GROOVED SPRINKLER CO. OR APPROVED EQUAL FOR USE IN THIS SPECIFIC APPLICATION.
(G) JD-2AL 4' X 4' BILCO DOOR, OR APPROVED EQUAL.
(H) SUMP WHERE WATER TABLE IS A PROBLEM OR GRAVITY DRAIN WHERE WATER TABLE IS NOT A PROBLEM. (SEE SUMP DETAIL WAT-19)
** (I) BYPASS LINE W/DETECTOR METER & BACKFLOW PREVENTER
(J) SAMPLING POINT



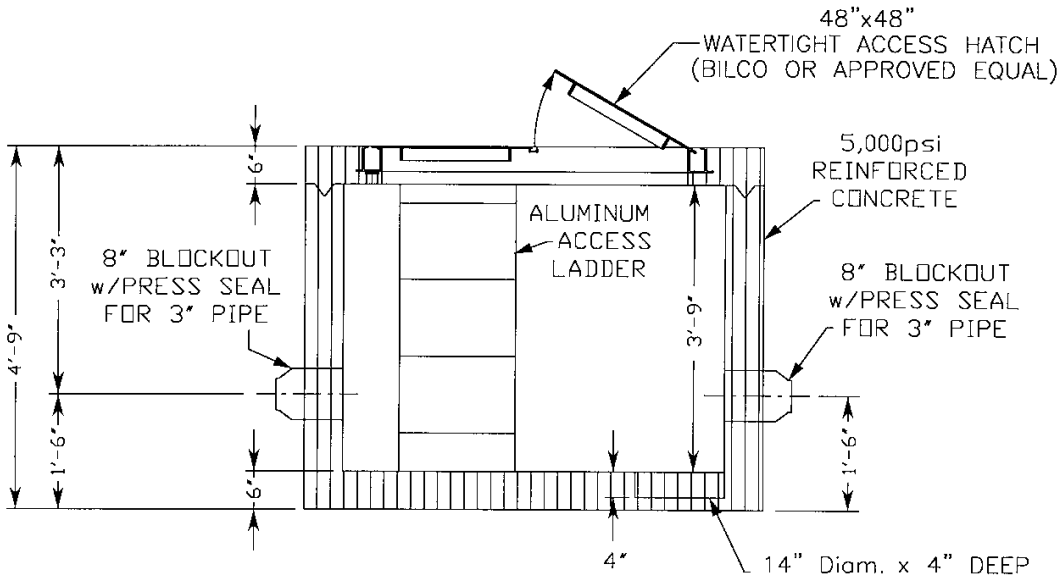
FOR ADDITIONAL INFORMATION ON REVIEW, DESIGN AND CONSTRUCTION, SEE PART IV, & PART V OF THE SPECIFICATIONS.

DATE: MARCH 2002	3" OR LARGER DOUBLE CHECK ASSEMBLY AND VAULT (Alternate 2)	DRWG. NO. FIR-3
REVISIONS: JUNE 2007		SHT. 2 OF 3

CHESTERFIELD COUNTY
DEPARTMENT OF PUBLIC UTILITIES



PLAN VIEW



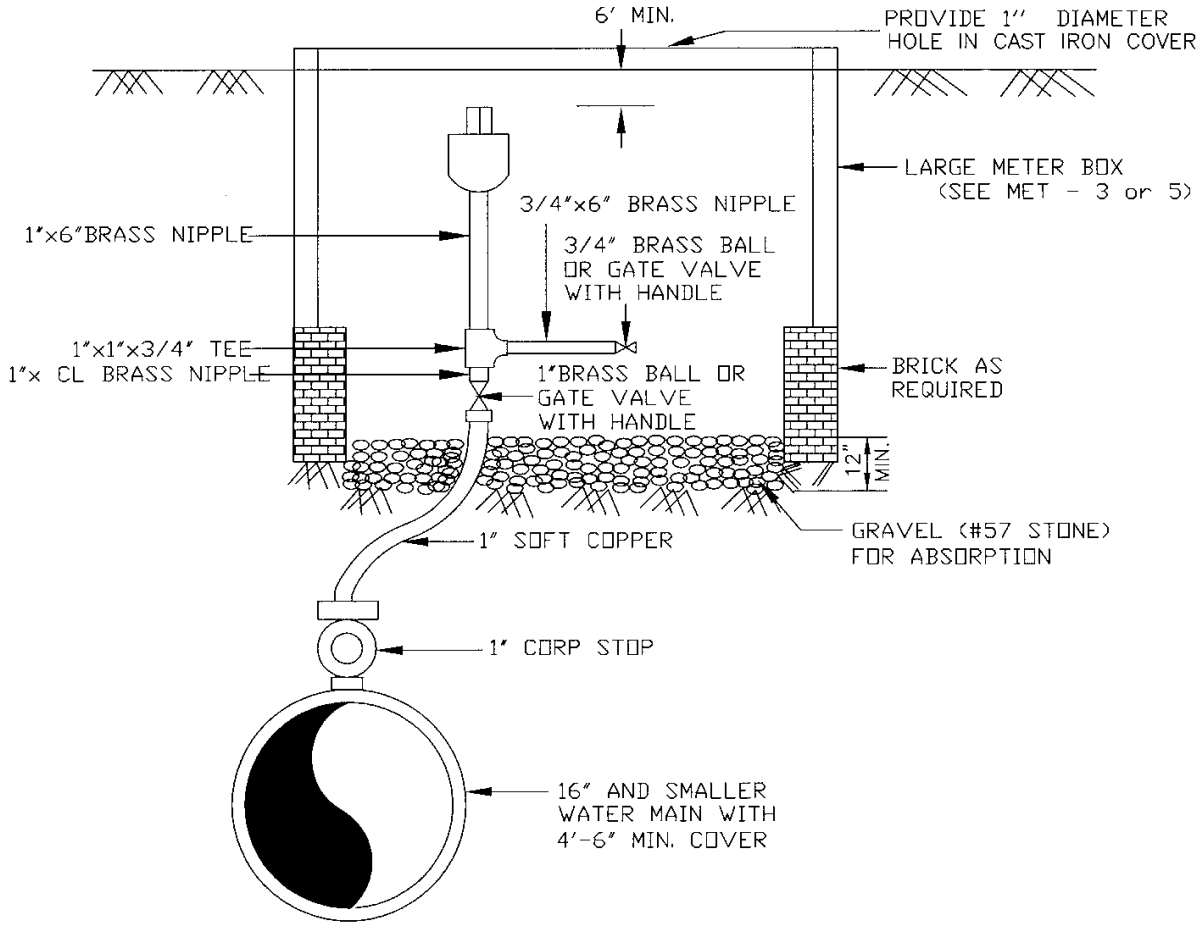
SECTION VIEW

NOTES

1. CLEAR FLOW VAULT SHIPPED ASSEMBLED WEIGHING APPROX. 12,000 LBS.

DATE: APRIL 2001 REVISIONS: JUNE 2007	ALTERNATE VAULT DETAIL FOR 3" and 4" WATER METERS	DRWG. NO. MET-10 SHT. 1 of 2

CHESTERFIELD COUNTY
DEPARTMENT OF PUBLIC UTILITIES

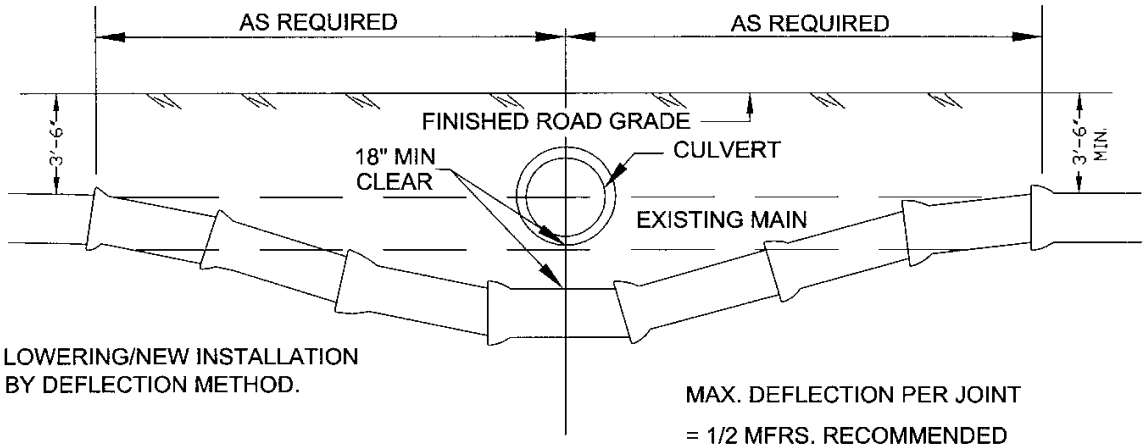


NOTE:

1. IT IS THE RESPONSIBILITY OF THE DESIGN ENGINEER TO DESIGN THE PUBLIC WATER SYSTEM TO MINIMIZE THE NUMBER OF AIR RELEASE VALVES BY ELIMINATING HIGH POINTS WHERE REASONABLY FEASIBLE AND TO PROPERLY SIZE THE AIR RELEASE VALVE TAKING INTO CONSIDERATION ALL THE DESIGN FACTORS, AND KEEPING IN MIND THAT A 1" AIR RELEASE VALVE FOR 16" WATER LINES IS DESIRABLE. ORIFICE SIZE SHALL BE NOTED ON PLANS.
2. ALL COPPER FITTINGS WILL BE FLARE OR COMPRESSION TYPE.
3. SADDLE MUST BE USED IF TAP IS MADE IN PVC.
4. WHERE THE AIR RELEASE VALVE IS REMOTE FROM THE WATER LINE THERE MUST BE CONTINUOUS RISE IN THE COPPER SUPPLY LINE TO THE AIR RELEASE VALVE AND NO TRAP SHALL BE PERMITTED.
5. AIR RELEASE VALVE TO BE PLACED WHERE NOT SUBJECT TO FLOODING.

DATE JAN. 1996	1" RELEASE VALVE	DRWG. NO. WAT-1
REVISIONS JUNE 2007		

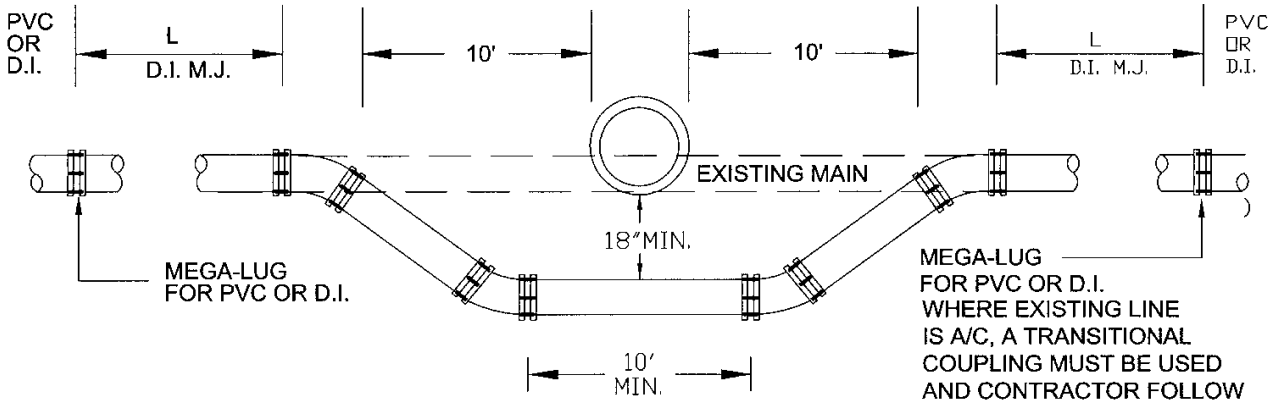
CHESTERFIELD COUNTY
DEPARTMENT OF PUBLIC UTILITIES



LOWERING/NEW INSTALLATION
BY DEFLECTION METHOD.

MAX. DEFLECTION PER JOINT
= 1/2 MFRS. RECOMMENDED
AMOUNT, AS PER WAT-9.

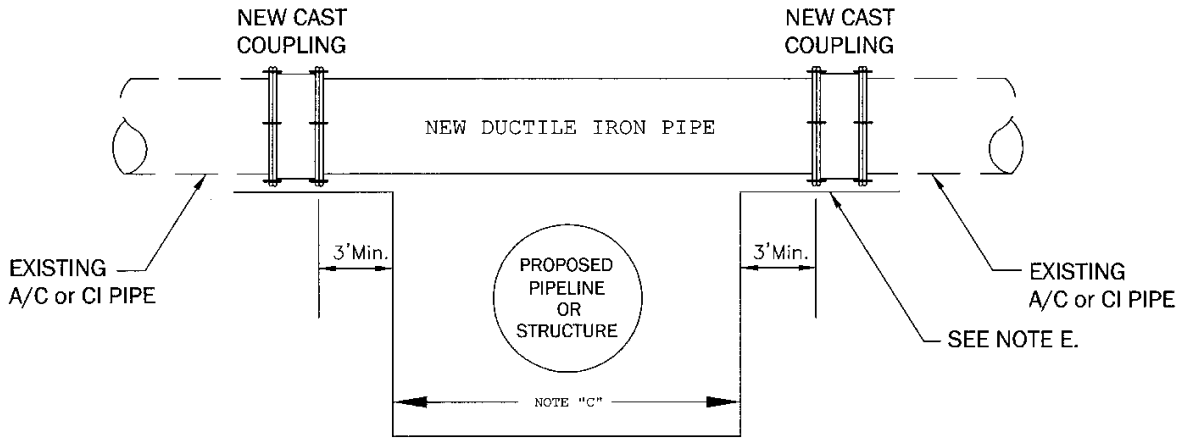
OR



1. LOWERED SECTION TO BE OF DUCTILE IRON MECHANICAL JOINT PIPE WITH RESTRAINED JOINTS AT ANY INCLUDED JOINTS. THE ENGINEER SHALL CALCULATE LENGTH OF RESTRAINED SECTION.
2. THRUST BLOCKS FOR VERTICAL BENDS MAY BE DELETED WITH RESTRAINED JOINTS.
3. UNDER VOIDS AND AROUND THE COUPLING OR THE ENDS OF THE A/C PIPE TO SUPPORT ENDS WHILE INSTALLING THE SUPPORT COUPLINGS ONTO ENDS. ie. 4x4 SALT TREATED TIMBER SUPPORT MUST BE LEFT AS A PERMANENT STABILIZATION.

DATE: JAN. 1996	LOWERING WATER MAIN OR NEW INSTALLATION	DRWG. NO. WAT-8
REVISIONS: JUNE 2007		

CHESTERFIELD COUNTY
DEPARTMENT OF PUBLIC UTILITIES



NOTE:
WHEN CONNECTING TO A/C WATERLINE, THE MACHINED END OF THE NEW PIPE MUST BE REMOVED PRIOR TO INSTALLATION OF THE CAST COUPLINGS.

A. WHEN CROSSING UNDER AN EXISTING CEMENT ASBESTOS (A/C) OR CAST (CI) WATER MAIN WITH A NEW PIPELINE OR STRUCTURE. WHERE SUCH CROSSING MAY RESULT IN A STRESS FAILURE TO THE EXISTING LINE, THE EXISTING LINE SHALL BE REPLACED WITH A SECTION OF DUCTILE IRON PIPE PRIOR TO CONSTRUCTION OF THE PROPOSED PIPELINE OR STRUCTURE.

B. WHENEVER A PROPOSED PIPELINE CROSSES UNDER AN EXISTING WATER MAIN, THE NEW TRENCH SHALL BE BACK FILLED COMPLETELY WITH CRUSHED STONE AND COMPACTED AS REQUIRED.

C. REPLACEMENT GUIDELINES BASED UPON TRENCH WIDTH CRITERIA:
CONTRACTOR SHALL USE EXTREME CAUTION WHEN CROSSING EXISTING WATER LINES. WHERE CROSSINGS CAN NOT BE ACCOMPLISHED WITHOUT EXCEEDING TRENCH WIDTH AS SPECIFIED BELOW, CONTRACTOR, AT HIS EXPENSE, SHALL REPLACE THE EXISTING A/C OR CI WATER LINE AS DEPICTED BELOW.

1. REPLACE EXISTING 4" – 6" A/C OR CI PIPE WHERE WIDTH OF NEW TRENCH CROSSING IS >2 FEET.
2. REPLACE EXISTING 8" A/C OR CI PIPE WHERE WIDTH OF NEW TRENCH CROSSING IS >4 FEET.
3. REPLACE EXISTING 10" – 16" A/C OR CI PIPE WHERE WIDTH OF NEW TRENCH CROSSING IS >6 FEET.

D. PIPELINE TO BE REPLACED SHALL EXTEND A MINIMUM OF 3 FEET BEYOND THE EDGES OF THE NEW TRENCH OR TO SUCH A POINT AS TO PROVIDE A MINIMUM OF 3 FEET OF UNDISTURBED EARTH BENEATH THE EXISTING PIPELINE.

E. UNDER VOIDS AND AROUND THE COUPLING OR THE ENDS OF THE A/C PIPE TO SUPPORT ENDS WHILE INSTALLING THE SUPPORT COUPLINGS ONTO ENDS. ie. 4x4 SALT TREATED TIMBER SUPPORT MUST BE LEFT AS A PERMANENT STABILIZATION.

DATE: JUNE 2000	**TYPICAL REPLACEMENT DETAIL**	DRWG. NO.
REVISIONS: JUNE 2007	**WHEN CROSSING EXISTING A/C OR CI PIPE**	**WAT-13**

CHESTERFIELD COUNTY
DEPARTMENT OF PUBLIC UTILITIES

NOTES

(a.) SLOPE INSIDE BOTTOM OF VAULT 1% TO SUMP

(b.) PROVIDE APPROVED RETAINER GLANDS ON ALL M.J. FITTINGS AND VALVES. ALL PIPE AND FITTINGS FROM MAINLINE TEE TO VAULT TO BE RESTRAINED.

(c.) CONTRACTOR SHALL SUBMIT PIPING SHOP DRAWINGS PRIOR TO FABRICATION OF PIPE OR POURING OF VAULT.

(d.) ALL FITTINGS SHALL BE ASA A21.10 (AWWA C110)

(e.) ALL RESILIENT SEAT VALVES SHALL BE NON-RISING STEM

(f.) PROVIDE CONC. PIPE SUPPORTS AS REQ'D BY MATERIAL & EQUIPMENT MFG. REQUIREMENT'S.

(g.) MJ= MECHANICAL JOINT, F= FLANGED, A= ANCHOR BOLT

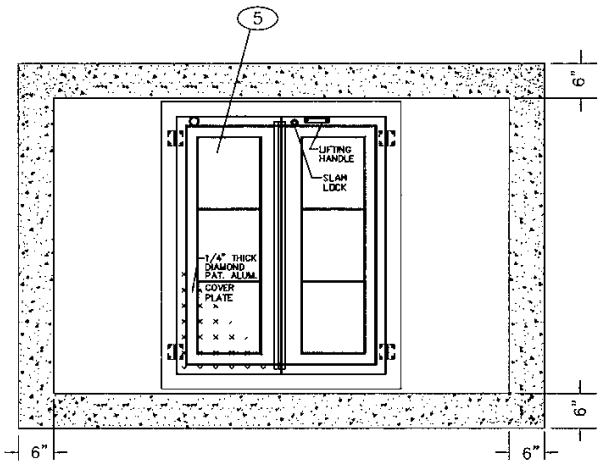
(h.) CONTRACTOR SHALL COORDINATE WITH LOCAL POWER SUPPLIER FOR EXTENSION OF THE PROPER POWER SUPPLY TO THE VALVE VAULT. ELECTRICAL CABLES IN VAULT SHALL BE IN PVC CONDUIT AND COMPLY WITH APPLICABLE ELECTRICAL CODES.

(i.) ALL PIPING IN THE VALVE VAULT SHALL BE PRIMED AND PAINTED WITH AN EPOXY COATING. THE COLOR SHALL BE SAFETY BLUE.

(j.) PRV'S NOT REQUIRING BYPASS VALVE SHALL BE CENTERED HORIZONTALLY IN VAULT.

(k.) PRV'S GREATER THAN 12" DIAMETER – DESIGNED TO BE COORDINATED WITH UTILITIES O & M TECH SUPPORT.

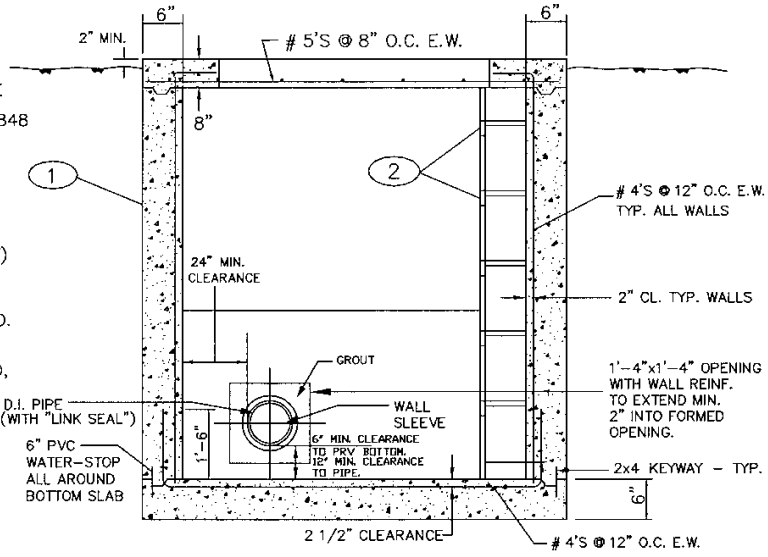
(l.) VAULTS ARE TO BE LOCATED IN AREAS NOT SUBJECT TO VEHICLE TRAFFIC LOADING – PRV'S WHERE IT IS NECESSARY TO SUBJECT THE VAULT TO VEHICLE TRAFFIC SHALL BE COORDINATED WITH UTILITIES O & M TECHNICAL SUPPORT.



TOP VIEW
NOT TO SCALE

P.R.V. & VAULT MATERIALS KEY

1. CONCRETE VAULT SEALED WITH WATER SEALANT (CLEAR FLO # 613 OR EQUAL)
2. ALUMINUM LADDER BOLTED TO VAULT WALL AND FLOOR. SAFETY EXTENSION TO BE PROVIDED WITH LADDER (HALLIDAY L1D LADDER AND L1E EXTENSION OR APPROVED EQUAL).
3. DRAINAGE SUMP
4. 2" SCHEDULE 80 P.V.C. DRAIN LINE W/CHECK VALVE
5. ALUMINUM ACCESS DOOR – BILCO; HALLIDAY W2C4848 OR APPROVED EQUAL.
6. CONCRETE THRUST BLOCK (SEE BLK-1, BLK-2)
7. 4" PRESSURE GUAGE WITH 3/4" TAPS
8. CLASS 52 D.I. PIPE
9. SUMP PUMP – HYDROMATIC (1/3Hp, 1 1/4" OUTLET) OSP33AB OR APPROVED EQUAL.
10. PRESSURE REDUCING VALVE (PRV) GOLDEN-ANDERSON OR APPROVED EQUAL, FLANGED.
11. BYPASS PIPE W/PRESSURE REDUCING VALVE (PRV) GOLDEN-ANDERSON OR APPROVED EQUAL, FLANGED, WITH TWO GATE VALVES (HANDWHEEL TYPE)
12. WALL SLEEVE – (WITH LINK SEAL)
13. RESILIENT SEAT VALVE WITH BOX (MJxMJ)
14. RESILIENT SEAT VALVE (FxF) (HANDWHEEL TYPE) .
15. 90° BEND (MJxMJ)
16. ANCHORING TEE (MJxMJxA)
17. LIGHT (EXPLOSION PROOF)
18. CLASS 52 D.I. PIPE
19. TEE (FxFxF)
20. SLEEVE COUPLING
21. RESILIENT SEAT VALVE (BUTTERFLY VALVE-16" & OVER) AND BOX (MJxMJ).



SECTION B-B
NOT TO SCALE

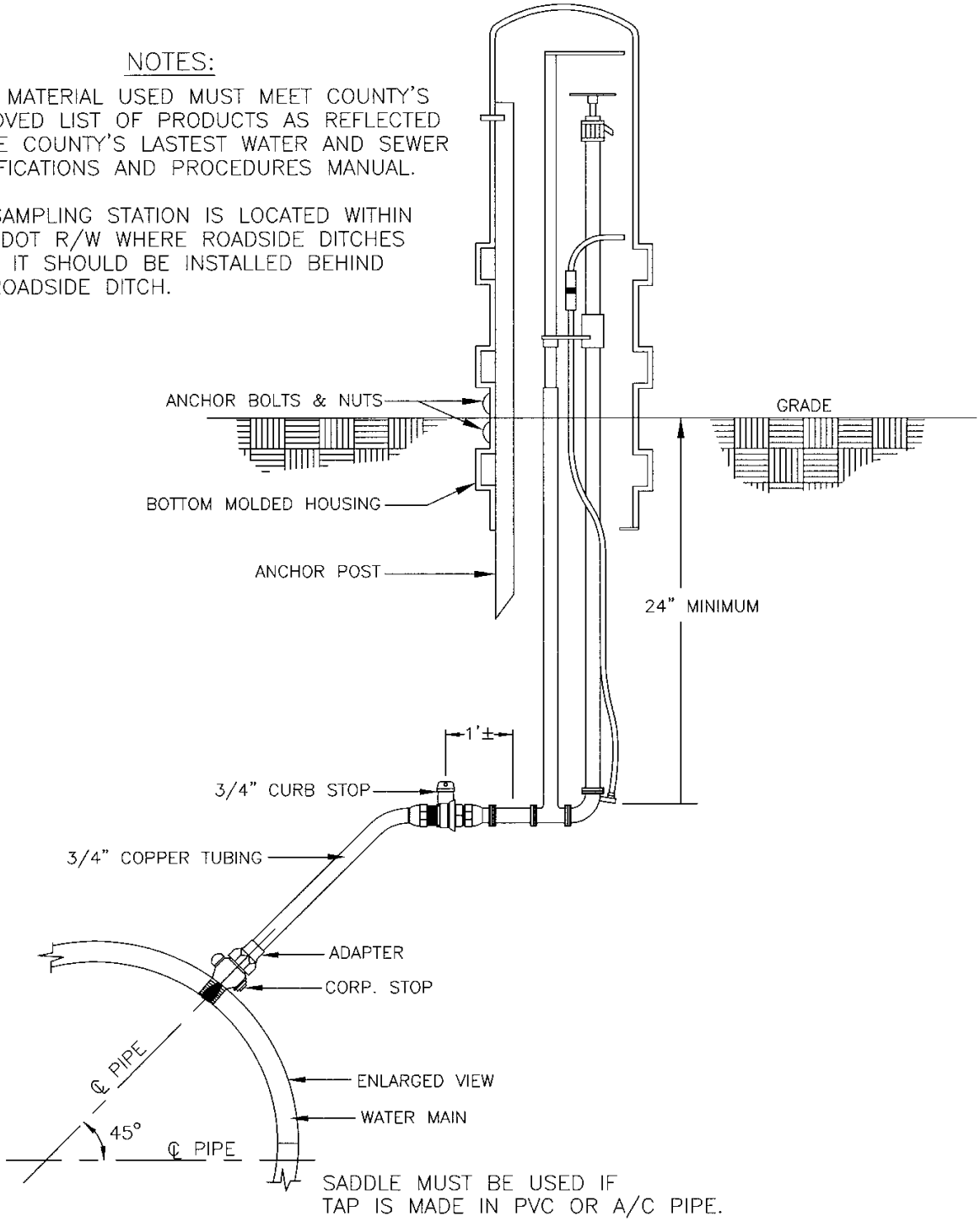
DATE: JUNE 2000	PRESSURE REDUCING VALVE AND VAULT	DRWG. NO. WAT-15
REVISIONS: JUNE 2007		SHT. 2 of 2

CHESTERFIELD COUNTY
DEPARTMENT OF PUBLIC UTILITIES

NOTES:

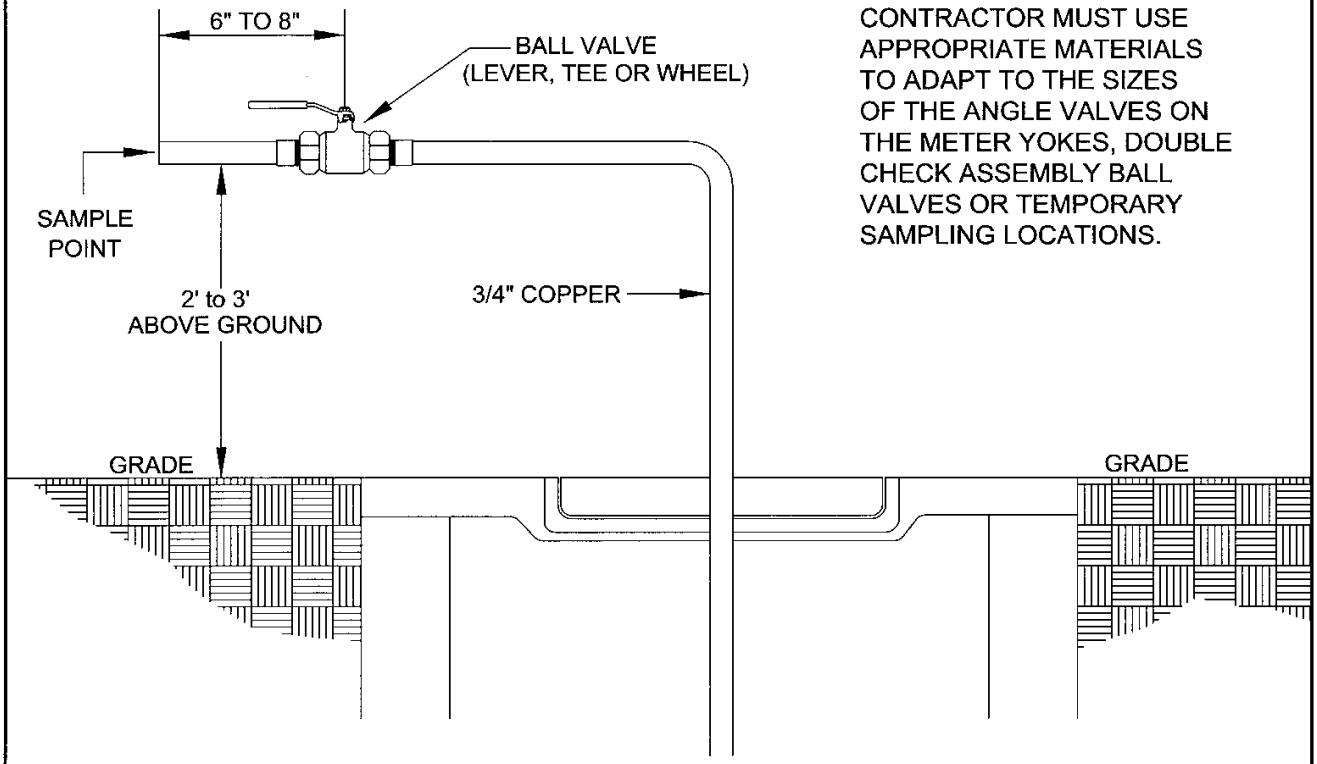
ALL MATERIAL USED MUST MEET COUNTY'S APPROVED LIST OF PRODUCTS AS REFLECTED IN THE COUNTY'S LASTEST WATER AND SEWER SPECIFICATIONS AND PROCEDURES MANUAL.

IF SAMPLING STATION IS LOCATED WITHIN THE VDOT R/W WHERE ROADSIDE DITCHES EXIST, IT SHOULD BE INSTALLED BEHIND THE ROADSIDE DITCH.



DATE: Sept. 2001 REVISIONS: JUNE 2007	TAPPING DETAIL FOR SAMPLING STATIONS	DRWG. NO. WAT-16 SHEET 1 OF 2

CHESTERFIELD COUNTY
DEPARTMENT OF PUBLIC UTILITIES



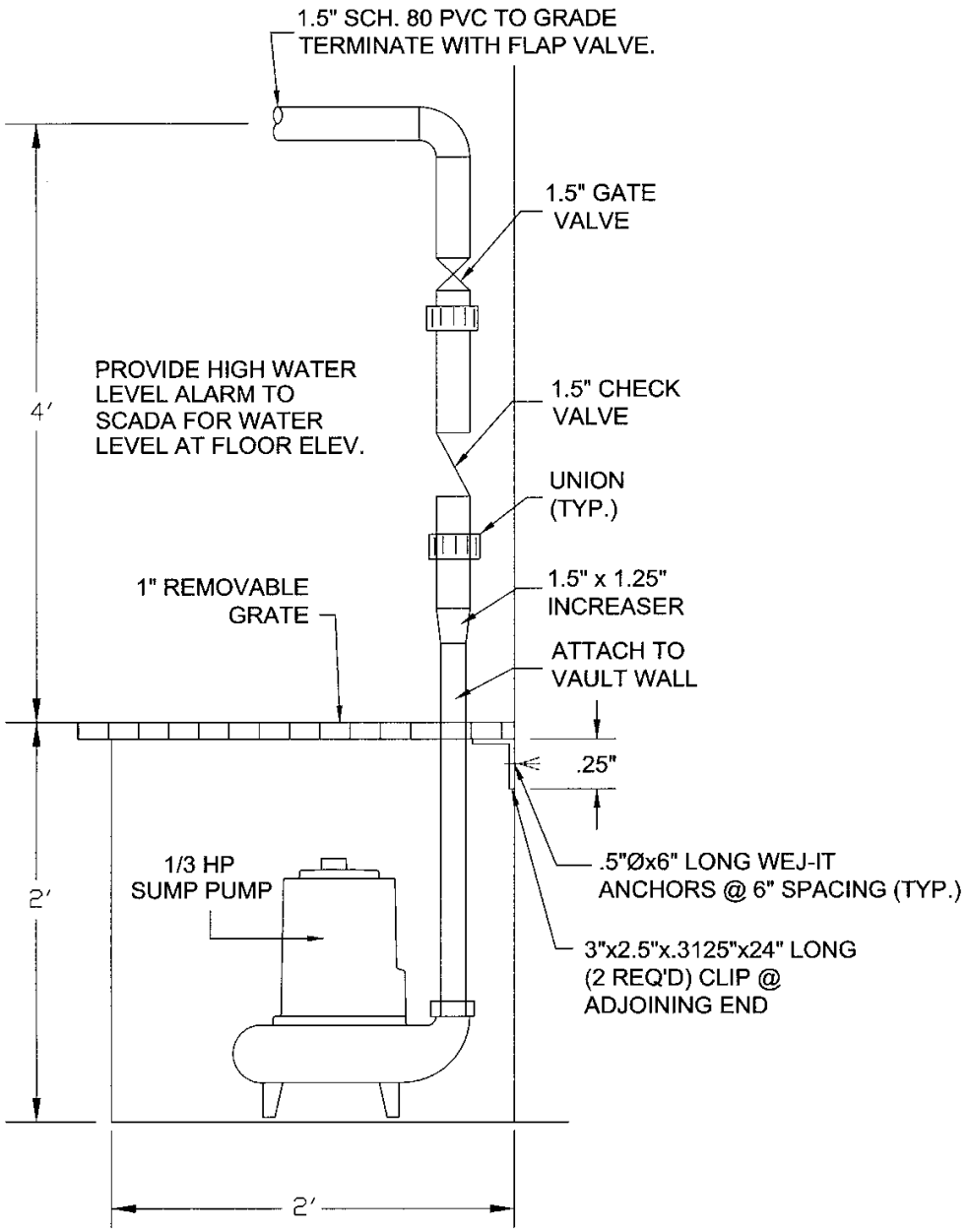
NOTE:
CONTRACTOR MUST USE APPROPRIATE MATERIALS TO ADAPT TO THE SIZES OF THE ANGLE VALVES ON THE METER YOKES, DOUBLE CHECK ASSEMBLY BALL VALVES OR TEMPORARY SAMPLING LOCATIONS.

NOTES:

1. DIRECT THE SAMPLE POINT AWAY FROM THE METER BOX TO PREVENT ANY WATER FROM SEEPING INTO THE BOX.
2. INSULATE DURING WINTER MONTHS
3. THIS IS A TEMPORARY SAMPLING POINT AND MUST BE PROPERLY ABANDONED BEFORE LINES ARE ACCEPTED.

DATE: JUNE 2007 REVISIONS:	TYPICAL TEMPORARY SAMPLING STATIONS	DRWG. NO. WAT-16 SHEET 2 of 2

CHESTERFIELD COUNTY
DEPARTMENT OF PUBLIC UTILITIES



NOTE:
A sump pump will be required if the vault or chamber is unable to be kept free of standing water. Sump pumps must discharge to landscape. Connections to sewers (storm or sanitary) or catch basins are not permitted.

DATE: JUNE 2007 REVISIONS:	SUMP PUMP	DRWG. NO. WAT-19

PART III

ADDENDUM PAGES

06/29/07

INSTRUCTIONS TO BIDDERS

1. **DATE AND PLACE OF BID OPENING.** Sealed bids on behalf of the County of Chesterfield, Virginia, will be received at the office of the Director of Purchasing, Room 402, Fourth Floor, Chesterfield Administration Building, 9901 Lori Road Chesterfield, Virginia 23832 until but no later than _____ local time prevailing, _____, 2_____, and then publicly opened and read immediately thereafter for the following:

   _____

   The Chesterfield County Contract Invitation for Bid No. for this project is _____. Invitation for Bid Documents may be obtained from_____(Engineer and Address)_____ _____for $_____. Drawings and specifications are nonrefundable.

   A MANDATORY or NON-MANDATORY (denote one) Pre-Bid Conference will be held (date, time, location) _____ _____.

   Time is of the essence and any bid received after the announced time and date for submittal, whether by mail or otherwise, will be rejected. The time of receipt shall be determined by the time clock stamp in the Purchasing Department. Bidders are responsible for ensuring that their bids are stamped by Purchasing Department personnel before the deadline indicated. Late bids received will be so noted in the bid file in order that the vendor's name will not be removed from the subject commodity/service list.

2. **CERTIFICATE OF REGISTRATION.** If a contract for construction, removal, repair or improvement of a building or other real property is for Seventy Thousand Dollars ($70,000) or more, or if the total value of all such contracts undertaken by Bidder within any twelve-month period is Five Hundred Thousand Dollars ($500,000) or more, the Bidder is required under Title 54.1, Code of Virginia (1950), as amended, to be licensed by the State Board of Contractors as a "CLASS A CONTRACTOR". If such a contract is for Seventy-five Hundred Dollars ($7,500) or more [One Thousand Dollars ($1,000) for electrical, plumbing and HVAC work] but less than Seventy Thousand Dollars ($70,000), the Bidder is required to be licensed as a "CLASS B CONTRACTOR". If such a contract is for One Thousand Dollars ($1,000) or more but less than Seventy-five Hundred Dollars ($7,500) and is not for electrical, plumbing and HVAC work, the Bidder is required to be licensed as a "CLASS C CONTRACTOR". The Contractor license shall have the appropriate specialty classification that is predominant for the respective work. The Bidder shall indicate in the space provided whichever of the following notations is appropriate, inserting his contractor license number and specialty.

10. **SUBCONTRACTORS.** The Bidder's attention is called to the requirement that not more than fifty (50) percent of the construction, labor and services necessary to construct the improvements defined in these contract documents shall be subcontracted. The amount of any subcontract proposed by any bidder shall be provided to the County upon request.

11. **RESTORATION OF PRIVATE PROPERTY.** On those projects where work is to be performed on private property, the County has obtained easements. The standard easement agreement states that any structures, landscaping (except for trees, limbs and undergrowth) and the surface of the easement shall be repaired or restored as nearly as possible to their original conditions. Any special requirements for restoration shall be shown on the plans or as directed by the inspector.

12. **ACCEPTANCE OF BID AND ITS EFFECT.** The Contract, if awarded, will be to the lowest responsible Bidder whose Bid complied with the requirements of the Owner. The Owner will either award the project or reject all Bids received within sixty (60) days after the formal opening of Bids. The acceptance of a Bid will be a written Notice of Award, signed by the Owner, and no other act shall constitute the acceptance of a Bid. The bid shall be deemed accepted by the County upon mailing of the Notice of Award.

    The successful Bidder shall execute four (4) copies of the Agreement and furnish satisfactory Performance Bond, Labor and Material Payment Bond, and necessary certificates of insurance within fifteen (15) days after Notice of Award. Failure to so execute the Agreement will result in forfeiture of the Bidder's claim to the work and his Bid Bond or guarantee will be retained by the Owner to the extent necessary to make up the difference between the Bid and the second low bid.

13. **BID AMOUNT.** If the bid from the lowest responsible bidder exceeds available funds, the Owner may negotiate with the low bidder to obtain a contract price within available funds.

14. **DISABILITY PROVISION.** If you are an individual with a disability and require a reasonable accommodation, please notify the Chesterfield County Purchasing Department at (804) 748-1617, three working days prior to need.

15. **QUALITY EXPECTATION STATEMENT.** Chesterfield County, through its "Total Quality Improvement" initiative, is a recognized leader in providing quality products and services at the most effective cost possible. Therefore, the County fully expects, requires, and shall hold all Contractors, and all agents, staff, representatives, and subcontractors of the Contractor, responsible for, and accountable to, the highest quality standards of professional workmanship, products and services. In the spirit of the county's total quality improvement initiative, the Contractor shall be expected to become a member of the team and perform or provide all work, services and products with a target of "zero defects - zero rework".

16. **AWARD PHILOSOPHY.** Chesterfield County will make award to the lowest responsible and responsive bidder. The lowest responsive bidders may be required to furnish a written statement of their qualifications, to include references, prior to any such award. The County may contact all references furnished by bidders. The right is further reserved by the County to contact references other than, and/or in addition to, those furnished by the bidder.

    If, in the sole opinion of the County, a bidder is determined to be non-responsible as a result of any investigation conducted by or for the County, award will not be made to that bidder.

17. **PROPRIETARY INFORMATION.** Section 2.2-4342 of the Code of Virginia states: "Trade secrets or proprietary information submitted by a bidder, offeror, or contractor in connection with a procurement transaction shall not be subject to public disclosure under the Virginia Freedom of Information Act; however, the bidder, offeror, or contractor must invoke the protection of this section in writing and prior to or upon submission of the data or other materials, and must clearly and specifically identify the data or other materials to be protected and state the reasons why protection is necessary. Bidders, offerors, or contractors may not declare their entire bid or proposal as proprietary, nor may they declare any pricing as proprietary.

18. **COMMITMENT TO DIVERSITY AND CHESTERFIELD BUSINESSES.** Chesterfield County is a growing progressive community consisting of an increasingly diverse population. This diversity provides for a dynamic and robust community that promotes growth. Chesterfield County believes that all of its citizens should benefit from this economic growth without regard to race, color, religion or economic status.

The county is committed to increasing the opportunities for participation of minority business enterprises, woman-owned businesses and businesses located in Chesterfield County to ensure diversity in its procurement and contract activities. These businesses are encouraged to respond to all Invitations for Bids and Requests for Proposals. In addition, the county strongly encourages each contractor and/or supplier with which the county contracts to actively solicit minority business enterprises, woman-owned businesses and businesses located in the county as subcontractors/suppliers for their projects.

Upon award/completion of work, the County will require the contractor to furnish data regarding subcontractor/supplier activity with Minority-Owned Businesses (MOB), Women-Owned Businesses (WOB), and Chesterfield Businesses (CB) on a Certification of Subcontractor/Supplier Activity form. The form will be provided to the contractor by the Purchasing Department. This information will enable the County to document the dollar level of activity and measure the success of its purchasing and contracting efforts in this endeavor.

19. DEFINITIONS. Women-Owned Business (WOB) **-** a business concern that is at least 51% owned by one or more women who are U. S. citizens or legal resident aliens, or in the case of a corporation, partnership, or limited liability company or other entity, at least 51% of the equity ownership interests is owned by one or more women who are citizens of the United States or non-citizens who are in full compliance with the United States immigration law, and both the management and daily business operations are controlled by one or more women who are U.S. citizens or legal resident aliens. (*Code of Virginia* 2.2-1401)

Minority-Owned Business (MOB) – a business concern that is at least 51% owned by one or more minority individuals or in the case of a corporation, partnership, or limited liability company or other entity, at least 51% of the equity ownership interest in corporation, partnership, or limited liability company or other entity is owned by one or more minority individuals and both the management and daily business operations are controlled by one or more minority individuals. (*Code of Virginia* 2.2-1401*)*

Chesterfield Business (CB) - any private business enterprise, located within the jurisdictional boundaries of Chesterfield County.

20. OFFICE CLOSURE. In the event that Chesterfield County government offices are closed due to inclement weather and/or emergency situations at the time set aside for a pre-bid meeting and/or the published bid opening, the pre-bid meeting and/or bid opening date will default to the next open business day at the same time.

21. **BIDDERS BOND**. All Bids must be accompanied by a bidders bond in the amount of 5% of the total bid or a certified check in the amount of 5% of the total bid made payable to: TREASURER, CHESTERFIELD COUNTY.

22. **AWARD NOTIFICATION**. For information pertaining to the award of this procurement transaction, bidder may access public notification electronically at www.chesterfield.gov/ManagementServices/Purchasing/purchase.asp

BID FORM

To: _____
For the Construction of: _____

The undersigned Bidder has carefully examined the site of work, the Plans, the General Conditions, Technical Specifications, the Agreement, and the Form of Performance and Labor and Material Payment Bonds for the construction of the above named project, and in compliance with this Invitation for Bid Document dated _____ will provide all the necessary machinery, tools, apparatus, and other means of construction, and do all the work and furnish all materials called for in accordance with the requirements of the County and the true intent of the Contract Documents, and will complete the Contract within _____ calendar days.

For the Total Sum of:_____
_____( ) DOLLARS

The undersigned Bidder further understands that all supplies and materials covered by this Bid shall be new and of the best quality and the highest grade workmanship. The Bidder certifies by the submission of this Bid that there has been no violation of copyrights or patent rights in manufacturing, producing, or selling the product or services shipped or ordered as a result of this Bid. The successful Bidder shall, at his own expense, defend any and all actions or suits charging such infringements, and will save Chesterfield County, its officers, employees, and agents harmless from any and all liability, loss, or expense occasioned by any such violation.

The Bidder acknowledges receipt of the following Addenda:

Accompanying this Bid is a Bid Bond/certified check in the amount of _____payable to Treasurer, Chesterfield County, Chesterfield Courthouse, Virginia, which is to be forfeited to the extent necessary to make up the difference between the Bid and the second low bid, or if the undersigned shall fail to execute the Agreement and furnish satisfactory Performance and Labor and Material Payment Bonds under the conditions and within the time specified. If the Bid Bond or guarantee is not sufficient to make up the difference between the Bid and the second low bid, together with any consequential damages, the undersigned Bidder agrees to pay the Owner any losses in excess of the bond or guarantee.

The undersigned Bidder agrees to begin the work not later than ten (10) days after the date specified in the Notice to Proceed and to prosecute the work in such manner as to complete it within the time limit as set forth above. In the event the said work is not completed within the time limit above stated, Bidder shall be liable and hereby agrees to pay the Owner as liquidated damages and not as a penalty the sum of $_____ dollars per calendar day for each and every day that the said work remains incomplete after the expiration of the substantial completion date and $_____ dollars per calendar day for each and every day that the said work remains incomplete after the expiration of the Final completion date.

If the bid from the lowest responsible bidder exceeds available funds, the County may negotiate with the low bidder to obtain a contract price within available funds.

Va. Contractor No. _____/Class _____/Specialty_____/Dated_____

If determined to be the successful low bidder(s), and the project cost exceeds $200,000, the bidder elects to utilize the escrow account procedure, a copy of which will be furnished with the contract.

_____
Write "yes" or "No"
on above line

The County reserves the right not to withhold retainage.

In the event the successful bidder elects to use the escrow account procedure, the "Escrow Agreement" form shall be executed and submitted to the County of Chesterfield Purchasing Department within fifteen (15) calendar days after notification. If the "Escrow Agreement" form is not submitted within the fifteen-day period, the contractor shall forfeit his rights to the use of the escrow account procedure.

Award of this bid shall be based upon

_____

_____

CERTIFICATION OF NON-COLLUSION AND SIGNATURE SHEET
This sheet must be signed and submitted with bid in order for bid to be considered.

My signature below certifies:

- I agree to abide by all conditions of this Bid and that I am authorized to sign this Bid.

- The accompanying bid is not the result of or affected by, any act of collusion with another person or company engaged in the same line of business or commerce, or any act of fraud punishable under, Chapter 12, Title 18.2, 498.4 of the *Code of Virginia*, 1950, as amended. Furthermore, I understand that fraudulent and collusive bidding is a crime under the Virginia Governmental Frauds Act, the Virginia Government Bid Rigging Act, the Virginia Anti-Trust Act, and Federal Law and can result in fines, prison sentences, and civil damage awards.

- The accompanying bid is in compliance with the *State and Local Government Conflict of Interests Act* 2.2-3100, supplemented by Article 6, 2.2-4367-69 of the *Code of Virginia*. Specifically, no county employee, county employee's partner, or any member of the county employee's immediate family holds a position with the bidder, offeror, or contractor such as an officer, director, trustee, partner or the like, or is employed in a capacity involving personal and substantial participation in the procurement transaction, or owns or controls an interest of more than five per cent.

Complete Legal Name of Firm:_____

Check One: ____ **Individual** ____ **Partnership** ____ **Corporation**

Order From Address: _____

_____

Remit To Address: _____

_____

Signature: _____

Name (type/print): _____ **Title:**_____

Fed ID No.: _____ **Phone (____)** _____ **Fax (____)** _____

We hereby provide the following information to Chesterfield County regarding our business. We understand that it is provided for statistical purposes only and all firms submitting bids will receive equal consideration.

Minority-Owned Business: **Yes** _____ **No** _____

Women-Owned Business: **Yes** _____ **No** _____

Chesterfield Business: Yes _____ No _____

TYPICAL BID FORM

(Example Only - Engineers shall prepare a standard bid proposal for each project using this typical bid form as a guideline.)

FOR
WATER PROJECTS

CONTRACT NUMBER _____

Item No. and Estimated Quantity	Item	Unit Price	Item Amount
1. _____ L.F.	Clearing and Grubbing @ _____	$ _____	$ _____
2. _____ C.Y.	Rock Excavation @ Seventy and no/100	$ 70.00	$ _____
3. _____ C.Y.	Hardpan Excavation @ Thirty-Five and no/100	$ 35.00	$ _____
4. _____ C.Y.	Hand Excavation @ _____	$ _____	$ _____
5. _____ C.Y.	Removal of Unstable Soil and Replacement with Select Fill @ Eighteen and no/100	$ 18.00	$ _____
6. _____ M.B.F.	Sheeting and Shoring Ordered Left in Place @ One Thousand and no/100	$ 1,000.00	$ _____
7. _____ L.F.	Furnish, Install, Excavate & Backfill _____- Inch Water Main @ _____	$ _____	$ _____
8.	Furnish, Install, Excavate & Backfill _____-Inch Water Main Fittings		
_____ EA.	45° Bend @ _____	$ _____	$ _____
_____ EA.	22½° Bend @ _____	$ _____	$ _____
_____ EA.	11¼° Bend @ _____	$ _____	$ _____
9. _____ EA.	_____-Inch X _____-Inch Tee @ _____	$ _____	$ _____
10. _____ EA.	Furnish, Install, Excavate & Backfill _____-Inch Gate Valves @ _____	$ _____	$ _____

TYPICAL BID FORM

(Example Only - Engineers shall prepare a standard bid proposal for each project using this typical bid form as a guideline.)

FOR
SEWER PROJECTS

CONTRACT NUMBER _____ __

Item No. and Estimated Quantity	Item	Unit Price	Item Amount
1. _____ L.F.	Clearing and Grubbing @ _____	$ _____	$ _____
2. _____ C.Y.	Rock Excavation @ Seventy and no/100_____	$ 70.00	$ _____
3. _____ C.Y.	Hardpan Excavation @ Thirty-Five and no/100__	$ 35.00	$ _____
4. _____ C.Y.	Hand Excavation @ _____	$ _____	$ _____
5. _____ C.Y.	Removal of Unstable Soil and Replacement with Select Fill @ Eighteen and no/100_____	$ 18.00	$ _____
6. _____ M.B.F.	Sheeting and Shoring Ordered Left in Place @ One Thousand and no/100	$ 1,000.00	$ _____
7. _____ L.F.	Furnish, Install, Excavate & Backfill 8-Inch Sanitary Sewer 0-6 Feet @ _____	$ _____	$ _____
_____ L.F.	6-8 Feet @ _____	$ _____	$ _____
_____ L.F.	8-10 Feet @ _____	$ _____	$ _____
_____ L.F.	10-12 Feet @ _____	$ _____	$ _____
_____ L.F.	Over 12 Feet @ _____	$ _____	$ _____

57. DRUG FREE WORKPLACE

During the performance of this contract, the contractor agrees to:

A. Provide a drug-free workplace for the contractor's employees

B. Post in conspicuous places, available to employees and applicants for employment, a statement notifying employees that the unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or marijuana is prohibited in the contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition.

C. State in all solicitations or advertisements for employees placed by or on behalf of the contractor that the contractor maintains a drug-free workplace.

D. Include the provisions of the foregoing clauses in every subcontract or purchase order over $10,000, so that the provisions will be binding upon each subcontractor or vendor.

For the purposes of this section, "drug-free workplace" means as site for the performance of work done in connection with a specific contract awarded to a contractor in accordance with this chapter, the employees of whom are prohibited from engaging in the unlawful manufacture, sale, distribution, dispensation, possession or use of any controlled substance or marijuana during the performance of the contract.

58. UNBALANCED BIDS

The County reserves the right to negotiate unbalanced unit prices with the lowest bidder prior to award and to award to the next low bidder if a reasonable fee is not achieved.

59. ENVIRONMENTAL MANAGEMENT

Contractor shall be responsible for complying with all applicable federal, state, and local environmental regulations, if any. Additionally, the Contractor must meet all Chesterfield County Environmental Management System (EMS) requirements. For questions or additional information, contact the Office of Environmental Management at (804)717-6531.

60. FAITH-BASED ORGANIZATIONS

Chesterfield County does not discriminate against faith-based organizations in accordance with the Code of Virginia, Section 2.2-4343.1.

61. WATER LINE TIE-INS

All water line tie-ins to the existing distribution system including vertical and horizontal relocations shall be coordinated with the Operations and Maintenance Section of the Utilities Department. Tie-ins shall be scheduled Monday thru Thursday from 9:00 a.m. to 4:00 p.m. Tie-ins may be required outside of this time and/or during nighttime hours.

The County reserves the right to require the Contractor to perform tie-ins outside of the normal working hours detailed above in the interest of public safety or customer service. No claim for additional compensation shall be made by the Contractor when such occasions occur.

Proper preparation including field verification of the plans shall be accomplished to minimize shutdown time and prevent the tie-in from exceeding scheduled shutdown time. Sufficient personnel, equipment and materials shall be on site prior to the water being shut off. Where applicable, excavation and preassembling of fittings shall be performed. If, in the opinion of the inspector, sufficient resources are not available, the tie-in will be cancelled and rescheduled.

Tie-ins to asbestos cement pipe shall be made to rough barrel pipe. Tie-ins to the machined section of asbestos pipe will not be permitted. Where asbestos cement pipe couplings have been removed, the machined end of the pipe shall be removed. Abandonment of cement asbestos pipe shall be per state and federal requirements.

Tie-ins involving fittings shall include provisions for temporary blocking until concrete blocking has cured.

All pipe and fittings used for a tie-in are to be swabbed with a 1% chlorine solution prior to connection.

Before a tie-in will be allowed, all new valves, including fire hydrant valves, shall be accessible and verified fully open by the Contractor, unless there are valves designated as “normally closed”. Prior to tie-in, the Inspector shall verify that all valves, including fire hydrant valves, are fully open and accessible.

Immediately after a tie-in has been made, all valves used during the shutdown shall be verified fully open by the Inspector. All fire hydrants shall be checked by the Inspector to ensure water is available and each hydrant is in working order.

62. PROCEDURES FOR CLAIMS AND DISPUTES

A claim is a demand or assertion by the Contractor seeking, as a matter of right, adjustment or interpretation of Contract terms, payment of money, extension of time or other relief with respect to the terms of the Contract. Claims must be initiated by written notice. The responsibility to substantiate claims shall rest with the Contractor.

Claims by the Contractor must be initiated within 21 days after occurrence of the event giving rise to such claim or within 21 days after the claimant first recognizes the condition giving rise to the claim, whichever is later. Claims must be initiated by written note to the Architect or Engineer and Owner. Submittal of a claim by the Contractor within the time limits prescribed by this paragraph shall be required as a condition precedent to the institution of litigation by the Contractor with respect to the subject matter of that claim.

63. PROGRESS MEETINGS

Contractor shall hold a progress meeting at a time, date and frequency set forth in the pre-construction meeting to review progress to date and resolve all questions for the upcoming progress meeting. Engineer is responsible for the preparation of the progress meeting agenda and minutes. Engineer will forward progress meeting agenda to the Contractor for any additions to agenda.

64. CONTRACTOR BACKGROUND CHECKS

In order to preserve the integrity and security of county government operations, contract workers may be required to undergo a criminal background check conducted by Chesterfield County. The County will conduct these checks for any worker it believes will have unsupervised access to County designated Security Sensitive areas. Contract workers providing goods, services or construction in these designated areas are required to confine themselves to the area of the work. Based on the results of the background check, the contract worker may be disqualified from providing work/services for Chesterfield County.

65. SENSITIVE INFORMATION HANDLING

Any information in the possession of the county/schools which is specific to a student, citizen, county/school business function, private business entity or other government entity which is not generally available to the public shall be designated Sensitive Information. Contract workers will under no circumstances remove Sensitive Information from county facilities. Any Sensitive Information which must reside temporarily on a hard drive or portable storage device (USB Key, CD ROM, memory card, etc.) for processing must remain within the county facility. No Sensitive Information may be remotely accessed by contract workers by dial in, VPN, web interface or other means without expressed consent of the department head and the Information Security Manager (county) or Director of Technology (schools). Any access to county/schools information by contract workers from outside the county intranet shall be in accordance with existing Information Systems Technology (IST) Chesterfield County Public Schools (CCPS) Technology department security policies and procedures. Contract worker network connected computer equipment will be subject to all applicable IST/CCPS policies and procedures. Any exception to this application of policies shall be approved by the CCPS Department of Technology/county Information Security Manager and Chief Information Officer or designees.

INSTRUCTIONS REGARDING INSURANCE CERTIFICATES

The Contractor and his insurance company should carefully review the insurance requirements applicable to this job. All requirements must be met before the County will execute the contract. In particular, we would call your attention to the following:

1. Please note that the Insurance Certificate must state that the Commercial General Liability and the Umbrella Liability Insurance Policies name **Chesterfield County** as additional insured. This requirement may be met by placing the following language on the Certificate. Many Certificates have a space headed **"Description"** where the language may be inserted as follows:

   Chesterfield County is additional insured *or that*
   Chesterfield County is additional insured with respects to General Liability and Umbrella Liability policies.

2. The Insurance Certificate must also contain the required statement concerning notice of cancellation or other change in coverage. The statement used on some Certificate forms is not acceptable. The statement which is required by the contract documents reads as follows:

   "Such certificate shall provide that in the event of the cancellation of the policy or policies listed on such certificate, not less than 30 days notice in writing shall be given to the County."

   NOTE: This requirement may be achieved through modifications to the cancellation clause by striking the words 'endeavor to' in the second line and by striking the clause reading 'but failure to mail such notice shall impose no obligation or liability of any kind upon the insurer, its agents or representatives." OR In lieu of modifying the cancellation clause, Chesterfield County may be listed an additional insured as an endorsement to the policy or by endorsement to the policy the insurer will provide 30 day cancellation notice to Chesterfield County. The endorsement should be on a separate form and attached to the certificate.

3. The Certificate Holder should be listed as:

   Chesterfield County
   c/o Purchasing Department
   P. O. Box 51
   Chesterfield, VA 23832-0001
   Project Name or IFB #

4. Certificate of Insurance must be signed.

Compliance with above requirements is demonstrated on the attached blank certificate form.

PART IV

ADDENDUM PAGES

06/29/07

NO CHANGES AT THIS TIME

PART V

ADDENDUM PAGES

06/29/07

PART V

APPROVED MATERIALS AND MANUFACTURERS LIST
AND
MATERIAL SPECIFICATIONS
CHESTEFIELD COUNTY, VIRGINIA

***INSTRUCTIONS* for viewing and/or printing this document:**

Click on PART V **above to view or print this portion of the specifications. Each section has been set up with bookmarks making it more convenient to locate various topics within the document. After pulling up the section you wish to view or print, click on "BOOKMARKS" in the left hand margin of the document. (When printing the document, please remember to print this table of contents and include it in your book.)**

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2. Butterfly Valves (For Use on 16″ and Larger Lines)

   a. Mueller - Lineseal III

   b. DeZurik Baw AWWA

   c. Pratt's Groundhog Class 150B and Triton HP-250

   d. M&H Style 4500 (for 16″-24″)
      and Style 1450 (for 30″-54″)

   e. Mosser Series 810 & 830

   f. Rodney Hunt Streamseal (24″ and Larger)

   g. ValMatic American BFV (16″ and Larger)

   h. Milliken Models 510 and 511 (16″ and Larger)

C. Fire Hydrants

1. Mueller Centurion A-421

2. Kennedy "K81D" (Dual rotated hydrant)

3. M & H Style 929 Reliant

4. U.S. Pipe - Metropolitan 250 (Model 94)

5. Clow Medallion

6. American Darling - Mark 73-2

D. Meter (Setters) Yokes

1. For 5/8″ Meters: 5/8″ x 7″ Riser Meter Yoke with one lockwing ball or plug type, full port angle meter stop, with saddle nuts, ¾″ copper tube flare or compression connection inlet and outlet.

   a. Ford

      1) V71-7W-22-33 (plug type angle stop with copper flare connections inlet and outlet)
      2) V71-7W-44-33G (plug type angle stop with compression connections inlet and outlet for copper pipe)

3) VB71-7W-22-33 (ball type angle stop with copper flare connections inlet and outlet)
4) VB71-7W-44-33G (ball type angle stop with compression connections inlet and outlet for copper pipe)

b. McDonald

1) 29-107WXCC33 (ball type angle stop with copper flare connections inlet and outlet)
2) 21-107WXTT33 (ball type angle stop with compression connections inlet and outlet for copper pipe)

c. Mueller

* 1) H-1434 (plug type angle stop with plain NPT ends, also requires H-15450 end connections for copper flare inlet and outlet)
2) H-1470-5 (plug type angle stop with compression connections inlet and outlet for copper pipe)
* 3) B-2434 (ball type angle stop with plain NPT ends, also requires H-15450 end connections for copper flare on inlet and outlet)
4) B-2470 (ball type angle stop with compression connections inlet and outlet for copper pipe)

* **Note:** County requires manufacturer to supply these connections "completely factory assembled" and tightened to proper torque.

d. Cambridge

1) 6020-107H3H3-VO

2. For 5/8″ Meters: 5/8″ x 9″ Riser Meter Yoke with one lockwing ball or plug type, full port angle meter stop, with saddle nuts, ¾″ copper tube flare or compression connection inlet and outlet.

a. Cambridge

1) 6020-209H4H4-UO

3. For 1″ Meters:

Commercial - Domestic use by Businesses, Doctors and Dentists Etc.

1″ x 12″ Riser Meter Yoke with two lockwing, ball or plug type angle stop on inlet and outlet, saddle nuts, copper tube flare or compression inlet and outlet with ball valve bypass.

a. Ford

1) VV74-12W-22-44 w/ball valve bypass
2) VVB-74-12W-22-44 w/plug valve bypass
3) VV74-12W-44-44G (with compression connections inlet and outlet for copper pipe)

b. McDonald

1) 29B412WWCC443
2) 29B412WWTT443 (with compression connections inlet and outlet for copper pipe)

c. Cambridge

1) 6020-412H4H4-VO (without bypass)
2) 6020-412H4H4-UOB (with bypass)

All Other Users i.e. for Irrigation, Residential, Etc.

1″ x 12″ Riser Meter Yoke with 1 lockwing ball or plug type angle stop on inlet only, saddle nuts, copper tube flare inlet and outlet. No bypass.

a. Ford

1) V74-12W-22-44
2) V74-12W-44-44G (with compression connections inlet and outlet for copper pipe)

4. For 1½″ and 2″ Meters (Businesses, etc. with bypass):

*a. Ford - for 1½″ Meter - VBB76-7B-11-66
and for 2" Meter - VBB77-8B-11-77
*b. Mueller (for both) - H-1423
*c. A.Y. McDonald - Model 20A609 WWFF 665 for 1½″ meter, Model 20A709 WWFF 775 for 2" meter
*d. Cambridge – 1½″ Meter – 6020-609F6F6-UUB5 and for 2″ Meter – 6020-709F7F7-UUB5

For 1½″ and 2″ Meters (residential and irrigation with no bypass):

*a. Ford – for 1½″ Meter – VBB76-7-11-66 and
for 2″ Meter – VBB77-8-11-77
*b. A.Y. McDonald – for 1½″ Meter – 20-609 WWFF 660
for 2″ Meter – 20-709 WWFF 770
*c. Mueller (for both 1½″ and 2″) - #1422-00
*d. Cambridge – for 1½″ – 6020-609F6F6-UU
for 2″ – 6020-709F7F7-UU

*These products are acceptable provided manufacturer makes the necessary modifications to comply with the County's materials specifications for 1½″ and 2″ water meter setters.

E. Corporation Stops - Plug Type only for ¾″ and 1″; Plug Type or Ball Valves for 1½″ and 2″

(¾″ thru 2″ with "cc" thread inlet)

1. Mueller

a. H-15000
b. H-15008 (¾″ and 1″ corp stop with compression outlet for copper) or
H-15071 (¾″ and 1″ connector only to convert a normal H-15000 corp stop to compression, to avoid using special tapping machine adapters)

2. Ford

a. F-600 (Plug type with flare outlet only for ¾″ and 1″)
b. F-1000-3G (¾″ corp stop with compression connection for copper) or
C04-33G (¾″ connector only to convert a normal F-600-3 corp stop to compression, to avoid using special tapping machine adapters)
c. F-1000-4G (1″ corp stop with compression connection for copper) or C04-44G (1″ connector only to convert a normal F-600-4 corp stop to compression, to avoid using special tapping machine)

For 1½" and 2" Meters (residential and irrigation with no bypass):

*a. Ford – for 1½" Meter – VBB76-7-11-66 and
for 2" Meter – VBB77-8-11-77
*b. A.Y. McDonald – for 1½" Meter – 20-609 WWFF 660
for 2" Meter – 20-709 WWFF 770
*c. Mueller (for both 1½" and 2") - #1422-00
*d. Cambridge – for 1½" – 6020-609F6F6-UU
for 2" – 6020-709F7F7-UU

*These products are acceptable provided manufacturer makes the necessary modifications to comply with the County's materials specifications for 1½" and 2" water meter setters.

**E. Corporation Stops - Plug Type only for ¾" and 1";
Plug Type or Ball Valves for 1½" and 2"**

(¾" thru 2" with "cc" thread inlet)

2. Mueller

a. H-15000
b. H-15008 (¾" and 1" corp stop with compression outlet for copper) or
H-15071 (¾" and 1" connector only to convert a normal H-15000 corp stop to compression, to avoid using special tapping machine adapters)

3. Ford

a. F-600 (Plug type with flare outlet only for ¾" and 1")
b. F-1000-3G (¾" corp stop with compression connection for copper) or
C04-33G (¾" connector only to convert a normal F-600-3 corp stop to compression, to avoid using special tapping machine adapters)
c. F-1000-4G (1" corp stop with compression connection for copper) or C04-44G (1" connector only to convert a normal F-600-4 corp stop to compression, to avoid using special tapping machine)

4. McDonald
   a. 4701
   b. 4701-T (¾" and 1" corp stop with compression outlet for copper) or
      4700-T (¾" and 1" connector only to convert a normal #4701 corp stop to compression, to avoid using special tapping machine adapters)
4. JJC #J-1500
5. Ford FB-600 (Ball valve with flare outlet only for 1½" & 2")
6. Ford FB-100OG (Ball valve with compression outlet only for 1½" & 2")
7. Cambridge Brass
   a. 302-A3H3 (Plug type with compression outlet for ¾")
   b. 302-A3C3 (Plug type with flare outlet for ¾")
   c. 302-A4H4 (Plug type with compression outlet for 1")
   d. 302-A4C4 (Plug type with flare outlet for 1")
   e. 302-A6H6 (Plug type with compression outlet for 1½")
   f. 302-A6C6 (Plug type with flare outlet for 1½")
   g. 301-A6H6 (Ball valve with compression outlet for 1½")
   h. 301-A6C6 (Ball valve with flare outlet for 1½")
   i. 302-A7H7 (Plug type with compression outlet for 2")
   j. 302-A7C7 (Plug type with flare outlet for 2")
   k. 301-A7H7 (Ball valve with compression outlet for 2")
   l. 301-A7C7 (Ball valve with flare outlet for 2")

Compression Fittings - (for 1½" and 2" only)

1. Mueller 110
2. McDonald T-Compression
3. Ford Grip Joint
4. Cambridge Compression - CB

Curb Stops - ¾" and 1" copper flare, full port, ball or plug type curb stop, with or without check

	Copper Flare Plug Type	Copper Flare Ball Type
1. Ford ¾"	Z22-333	B22-333
Ford 1"	Z22-444	B22-444
2. Mueller ¾" & 1"	H-15300	N/A
3. McDonald ¾" & 1"	4713	6100

4.	Cambridge Brass ¾″	290-C3C3	202-C3C3
	Cambridge Brass 1"	290-C4C4	202-C4C4

Curb Stops - ¾″ and 1″ copper compression, full port, ball or plug type curb stop, with or without check.

		Compression Plug Type	Compression Ball Type
1.	Ford ¾″	Z44-3336	B44-3336
	Ford 1″	Z44-4446	B44-4446
2.	Mueller ¾″ & 1″	H-15207	B-25209
3.	McDonald ¾″ & 1″	4713-T	6100-T
4.	Cambridge Brass ¾″	290-H3H3	202-H3H3
	Cambridge Brass 1″	290-H4H4	202-H4H4

Curb Stops – 1½″ and 2″ pipe threaded or compression, full port, ball type curb stop, with or without check

		Compression Ball Type	Pipe Threaded Ball Type
1.	Ford 1½″	B44-6666	B11-666
	Ford 2″	B44-7776	B11-777
2.	Mueller 1½″ & 2″	B-25209	B-20283
3.	McDonald 1½″ & 2″	6100-T	6101
4.	Cambridge Brass 1½″	202-H6H6	202-F6F6
	Cambridge Brass 2″	202-H7H7	202-F7F7

F. Vaults, Precast Concrete - Requirements and configurations as shown on plans. (For other approved vaults, see “Water Meter Boxes” under Section 1).

1. Americast
2. Tindall Vaults
3. Clear Flow Company
4. Rotondo Precast

5. M&B (Model MB1500BF/WM with only the Ames 2000 series backflow device and Fire Protection Check Valve – Fig. 590F as manufactured by Grooved Sprinkler Company).

6. Bartow

G. Tapping Sleeve - Sleeves must conform to County's latest application instructions as specified in Section 4 entitled Materials Specifications.

1. **(Fabricated Steel Sleeves)** with Epoxy Coating and Stainless Steel Bolts and Nuts

   a. Smith Blair Model #622 w/MJ Branch (4″-30″)
   b. J.C.M. Industries #412 ESS (4″-48″)
   c. ROMAC # FTS 420 SS (4″-30″)
   d. Ford FTSC (4″-30″) w/SS bolts

2. **(Stainless Steel Sleeves) with stainless steel flange**

   a. Power Seal - Model 3480 AS and 3480 MJ (6″-24″)
      Model 3490 AS and 3490 MJ (6″-24″)
   b. ROMAC SST and SST III (6″-24″)
   c. Ford FTSS (6″-24″)
   d. Cascade - Model CST-EX (4″- larger)
      Model CST-SL (4″-24″)
   e. JCM Model 432 (6″-24″)
   f. Mueller H304 (6″-24″)
   g. Dresser Style 630 (6″ – 12″)
   h. Smith-Blair Models 663 (4″-20″)

3. **(M.J. Steel Sleeve)**

   a. JCM 414 Mechanical Joint
   b. Smith-Blair Model 623 (4″-48″)

4. **(M.J. Cast/Ductile Iron Sleeve)**

   a. Mueller (H-615 for 4″-24″ on Ductile Pipe and H-619 for 4″-12″ C/A Pipe)

   b. Clow (F-5205)

   c. American Flow Control - (Model 2800-A for A/C pipe; Model 2800-C for 4″-12″ D.I. and PVC pipes; Model 1004 for PVC pipe and 16" and larger D.I. pipe)

d. U. S. Pipe D.I. T-9 MJ Sleeve

5. **(Other)**

a. Mueller H300 (Not to be used on Asbestos Cement and Cast Iron Pipe)

H. Resilient Seated Wedge Tapping Valves

1. American Flow Series 500 Resilient Wedge Valve (for 6″-12″ only)

2. Mueller T-2360 Resilient Wedge Valve (for 6″-12″ only)

3. American Flow Control - Series 2500 (for 16″-30″ only)

4. Kennedy Model #4950 (for 4″ and 24″ only)

5. Clow Model F6114 (for 16″ and 36″ only)

6. American R/D – Series 2000 (Resilient Wedge)

I. Fittings (Bends, Crosses, Tees and Grade Lok Offset Glands) Ductile Iron only

1. D.I. Compact AWWA C153 or D.I./C.I. AWWA C110

2. D.I. Special Coated Compact Fittings AWWA 153

Couplings (For pipe sizes 12″ and smaller)

1. Cast Couplings (transition or straight)

a. Romac 501 series (long sleeve coupling)

b. Ford #FC2A (long sleeve coupling)

c. Smith Blair (Rockwell) #442 (long sleeve coupling)

d. Power Seal Model # 3501 (long barrel coupling)

e. Maxi Fit (long sleeve coupling)

f. Ford FC2W (Wide Range)

2. Cast D.I. Couplings

a. FEHR

J. Air Release or Combination Air Release and Vacuum Valves
(Engineer is responsible for specifying the appropriate type for its designated use)

1. Clow 5401-E (for 2″ inlet with small orfice)

2. Clow 5402-A (for 1″ inlet and 1″ orfice)

3. APCO (Product Bulletin No. 600 and/or 601)

4. G. A. Industries Type 1 GH4-150 Type 4 GH 7-K

5. Valmatic

6. Cla Val (Models 34, 35 & 36)

K. Blow Off Valves

1. 2″ Bronze Gate Valve
(open to most manufacturers, i.e., Grinell, Epsco, etc.)

L. Line Stopping Valves

1. Hydra-Stop

M. Water Meter Boxes/Vaults

1. Precast Concrete Box:

   a. Lyttle Service Co. LLC T/A Stamie E. Lyttle Co., Inc. (used with 1″, 1½″ or 2″ water meters and assemblies)
   b. Clear Flow Model CFLD6060 (for 3″ and 4″ water meters and assemblies)
   c. M&B – Model #MB1500BF/WM (for 3″ and 4″ water meters and assemblies)
   d. Bartow Precast Vaults (for 3″ and larger water meters and assemblies)

2. Hi-Density Polyethylene Plastic Box (for 5/8″ and 1″ water meters and assemblies only in areas not subject to vehicular traffic):

   a. Mid-States Plastics' meter box (for 5/8″ water meters) # MSBC1015-24-RL with cast iron cover and reader lid
   b. Mid-States Plastics' meter box (for 1″ water meters) # MSIBC1118-26-RL with ductile iron cover and reader lid

3. Cast Iron Box (for 5/8″ water meters and assemblies only in areas subject to vehicular traffic):

   a. Capitol Foundry Design # MBX-10 and MBX-11

N. Valve Boxes (Slip Type Only)

1. SIGMA

2. Bingham and Taylor

3. Capitol Foundry

4. Star Pipe

O. Copper Tubing - (as manufactured for domestic use)

1. Type “K” (soft) - for ¾″ and 1″ service lines

2. Type “K” (hard copper only) - for 1½″ and 2″ service lines

P. Service Saddles – (epoxy or nylon coated with double stainless steel straps, except Ford may have a 1¾″ wide strap and 2 bolts)

1. ROMAC - Style 202N

2. Smith-Blair (Rockwell) SB 317

3. Ford FC 202 Series, with cc Threads

4. PowerSeal Model No. 3417DI (with double straps)

5. Cascade - Styles CNS2 (for 12″ and smaller pipe), and CDSLD (large diameter saddles for 16″ and larger pipe)

6. Mueller - Model DRS2 (with double straps for 2″-12″)

Q. Pipe Restraints (must be UL Listed and FM Approved)

1. <u>For PVC Pipe</u> (Sizes up to 12″)

   a. EBBA Iron - Megalug Series 2000 PV (PVC Pipe - MJ Fittings)
   EBBA Iron - Megalug Series 1500 (PVC Bell and Spigot Joints)

   b. Romac Style 611 (PVC Bell and Spigot Joints)

c. Uni-Flange Series 1390-C (PVC Bell and Spigot Joints) Uni-Flange Series 1500 (PVC Pipe - MJ Fittings)

d. Star Pipe - STARGRIP Series 3600 (PVC Pipe - MJ Fittings)

e. Mueller - AquaGrip Intergral Restraint System for use on the Centurion Fire Hydrants and Mueller RS Valves

f. SIGMA One-Lok Model SLC

g. Capital - EZ-PVC

h. U.S. Pipe & Foundry MJ Field Lok Gaskets – Series PV & Series Gland (4″-12″)

2. For Ductile Iron Pipe -

a. EBAA Iron - Megalug 1100 Series (MJ Fittings) All Sizes

b. Uni-Flange Series 1400 Block Buster Wedge Action Retainer Glands (MJ Fittings) Sizes 4″-24″

c. Uni-Flange Series 1390-C (Bell and Spigot Joints) Sizes 6″–16″

d. Star Pipe - STARGRIP Series 3000 (MJ Fittings) Sizes 4″-48″ STARGRIP Series 3600 (MJ Fittings) Sizes 4″-12″

e. Romac - RomaGrip Sizes 4″–12″

f. SIGMA One-Lok Model SLD (MJ Fittings) Sizes 4″–36″

g. Capital - EZ-LOK restraint gland (4″-24″)

h. U.S. Pipe & Foundry - Field Lok 350 Gasket for bell and spigot only (4″-24″)

i. U.S. Pipe & Foundry MJ Field Lok Gasket - Series DI & Series Gland (4″-12″)

R. Markers

1. For All Types of Pipes

a. 66″ Carsonite White Utility Marker Post with two (2) factory applied decals (#CW-112 or #CWV-116, whichever is applicable; and Stock #P-101 decal)

b. Greenline Markers - Model #'s FLUlWH66 and DSUlWH66 with factory applied decals 159A, 029A or 094A, whichever is applicable in Chesterfield County.

S. Flushing Hydrants

1. Gil Industries 2″ Aquarius “One-O-One” HH (Chesterfield Type)

2. Kupferle 2″ Main Guard Model #78 (Chesterfield Type)

T. Double Check and Double Detector Check Devices (U.L. classified or F.M. Approved, AWWA compliant and ASSE listed 1015 for DC’s and 1048 for DDC’s)

Manufacturer	Model #'s	Size
Ames Co., Inc.	2000SS	4″ - 10″
	2000DCA	4″ - 8″
	2000SE	8″
	3000SS	4″ - 10″
	3000DCDA	4″ - 10″
	3000SE	8″
	200A Colt Series	2½″ - 10″
	300A Colt Series	2½″ - 10″
Cla-val Co.	D	2″ - 10″
	16DDC	3″ - 10″
Conbraco Industries, Inc.	40-10A	4″
	4060A02	4″
	4060C02	6″
	40-l0C	6″
	4010E02	8″
	4010G02	10″
	4S100	2½″ - 6″
	40100	2½″ - 10″
Febco	805 YD	3″ - 10″
	806 YD	3″ - 10″
	850	2½″ - 8″
	856	2½″ - 8″
	870 (V)	2½″ - 10″
	876 (V)	2½″ - 10″
Hersey Products	DDC11	3″ - 10″
	No. 2	3″ - 10″
	FDC	¾″ - 2″
	HDC	¾″ - 2″

Watts Regulator Co.	007	½″ - 3″
	007DCDA	2″ - 3″
	700	3″ - 4″
	709	3″ - 10″
	709DCDA	3″ - 10″
	770DCA	4″ - 10″
	770DCDA	4″ - 10″
	774DCA	4″ - 10″
	774DCDA	4″ - 10″
Zurn Industries, Inc. (Wilkins)	550	3″ - 6″
	MX-550	6″ - 10″
	MX-DCDA	6″ - 10″
	350	2½″ - 6″
	350DA	4″ - 6″
	450	4″ - 6″
	450DA	4″ - 6″
	950	2½″ - 10″
	950 LF	¾″ - 4″
	950 DA	2½″ - 10″
	950 XL	¾″ - 2″

U. Reduced-Pressure Principle Zone Devices (U.L. classified or F.M. approved, AWWA compliant and ASSE listed 1013)

Manufacturer	Model #'s	Size
Ames	4000 RP	4″ - 10″
	4000 SS	3″ - 10″
Cla-val Co.	RP-2	¾″ - 1½″
Conbraco Industries, Inc.	40-200	3″
	40-20A	4″
	40-20C	6″
	4020E02	8″
	4020G02	10″
	40200	2½″ - 10″
Febco	6C-M	3″ - 10″
	FRPII	¾″ - 1½″
	825 D & YD	3″ - 10″
	860	2½″ - 8″
	880 (V)	2½″ - 10″
Hershey Products, Inc.	6	4″ - 10″
	6C	4″ - 10″

Watts Regulator Co.	900	3″ - 6″
	909	3″ - 10″
	009RP	3″
Zurn Industries, Inc. (Wilkins)	375	2½″ - 6″
	375DA	4″ - 6″
	475	4″ - 6″
	475V	4″ - 6″
	975	2½″ - 10″
	975DA	2½″ - 10″

V. Casing Spacers

1. Cascade
2. Advance — Model SSI
3. PSI — Model No. C8G-2 Model No. C12G-2
4. Power Seal — Model No. 4810
5. BWM — Model BWM-SS
6. CCI — Model CSS

W. Lubricants

1. Blue Lube
2. Slikstyx (new product formulation only)

X. Water Sampling Stations

1. GIL # EH101

Y. Valve Key Extensions

1. Chesterfield Model (See Detail in Part II of this manual)

c. Lansas Posi-Seal Mechanical Plugs

2. For D.I. Pipe (Slip Joint Plug)

a. Griffin Pipe Products

b. Tyler

c. Union Foundry

d. Harrington Corporation (HARCO)

e. Standard International

f. Trinity Valley

g. American Cast Iron

h. U. S. Pipe and Foundry

i. Cherne

J. Valves

1. Sewage Air/Vacuum Release Valves

a. Vent-O-Mat Series RGX or RGSb – "Anti-Surge"
(Note: Engineer must design project using the appropriate valve.)

b. A.R.I. Combination Air Valve – Model D-020 and D-023

2. Plug Valves

a. DeZurik Series 100 [Figure 118] -
(Non-Lubricated Eccentric)

b. Val-Matic Series 5900 or 5800 Cam-Centric

c. Milliken – Millcentric (Eccentric Plug Valve)

d. Homestead Eccentric Plug Valve - Series 120

e. Clow Eccentric Plug Valve (3"-24")

	5.	American Flow Control 6900 Roswell Road Apt. P-4 Atlanta, GA 30362-0700	(770) 730-9925 FAX (770) 730-9985
	6.	American R/D, LLC 36 Mill Plain Road, Suite 307 Danbury, CT 06811	(203) 744-0753 FAX (203) 744-0796

LINE STOPPING VALVES

MANUFACTURERS:

	1.	Hydra-Stop Inc. 12601 South Homan Avenue Blue Island, IL 60406	(800) 538-5111

SERVICE MATERIAL

MANUFACTURERS:

METER YOKES (MY), CORPORATION STOPS (CS), COMPRESSION FITTINGS (CF), CURB STOPS (CBS), (See Part V, Section 1 for approved Model #'s)

MY,CS,CF, CBS	1.	Mueller Company 500 West Eldorado Street Decatur, IL 62525	(217) 320-6278
MY,CS,CF, CBS	2.	Ford Meter Box Co., Inc. 775 Manchester Ave. P.O. Box 443 Wabash, IN 46992	(219) 563-3171
		Ford Meter Box Co., Inc. c/o Loyal Butts 1695 Brackets Bend Road Powhatan, VA 23139	(804) 747-9955
MY,CS, CF,CBS	3.	A. Y. McDonald Manufacturing Co. P.O. Box 508 4800 Chavenelle Road Dubuque, IA 52001	(319) 583-7311 or (800) 292-2737
CS	4.	James Jones Company 4127 Temple City Boulevard E1 Monte, CA 91734	(818) 443-6191
MY,CBS, CS,CF	5.	Cambridge Brass P.O. Box 249, 140 Orion Place Cambridge, Ontario NIR-5V1	(519) 621-5520 FAX (519) 621-8038

5. FasTech Fastener Technology, Inc. (904) 474-0211
P.O. Box 13011 FAX (904) 474-0277
Pensacola, FL 32501

MISCELLANEOUS ITEMS

MANUFACTURERS:

ADAPTORS

1. GENECO (The General Engineering Co.) (301) 663-9282
Box 609 (800) 345-6454
Frederick, MD 21701 FAX (301) 695-5612

2. GPK Products, Inc. (800) 437-4670
1601 43rd. Street NW FAX (800) 822-6989
Fargo, ND 58102

3. DFW/HPI (800) 255-7633
P.O. Box 648 FAX (817) 488-4412
Bedford, TX 76095

6" OR 8" PLASTIC END PLUGS (WITH WING NUT AND EARS)

1. Certainteed Corporation (215) 341-7000
P.O. Box 860
Valley Forge, PA 19482

2. Cherne Industries, Inc. (800) 843-7584
5701 South County Road 18 (612) 933-5501
Minneapolis, MN 55436 FAX (612) 938-6601

3. Lansas Products (209) 334-4115
1320 South Sacramento Street (800) 452-4902
Lodi, CA 95240 FAX (209) 339-8260

GASKETS (G) and Flexible Manhole Connectors (FMC)

(FMC) 1. NPC Systems, Inc. (603) 673-8680
Elm Street, Box 301
Milford, NH 03055

(G) (FMC) 2. Press-Seal Gasket Corporation (800) 348-7325
P.O. Box 10482 FAX (219) 436-1908
Fort Wayne, IN 46852

(G) 3. Fowler Manufacturing Company (503) 357-2110
P.O. Box 767
Hillsboro, OR 97123

3. **Sewage Air/Vacuum Break Valves without Bias Mechanism -** All valves shall be designed in accordance with the following standard and/or by the Engineer as required:

The Sewage Air Release and Vacuum Break Valve shall consist of a compact tubular or conical all stainless steel fabricated body, hollow direct acting float and solid large orifice float in H.D.P.E. – stainless steel nozzle and woven dirt inhibitor screen, nitrile rubber seals and natural rubber seat.

The valve shall have an integral "Anti-Surge" Orifice mechanism which shall operate automatically to limit transient pressure rise or shock induced by closure to less than 1.5x valve rated working pressure.

The intake orifice area shall be equal to the nominal size of the valve i.e., a 6" valve shall have a 6" intake orifice.

Large orifice sealing shall be effected by the flat face of the control float seating against a nitrile rubber 'O' ring housed in a dovetail groove circumferentially surrounding the orifice.

Discharge of pressurized air shall be controlled by the seating and unseating of a small orifice nozzle on a natural rubber seal affixed into the control float. The nozzle shall have a flat seating land surrounding the orifice so that damage to the rubber seal is prevented.

The valve construction shall be proportioned with regard to material strength characteristics, so that deformation, leaking or damage of any kind does not occur by submission to twice the designed working pressure.

Connection to the valve inlet shall be facilitated by flanged ends conforming to ANSI B16.1 Class 125 or Class 250 Standards.

Flanged ends shall be supplied with the requisite number of stainless steel screwed studs inserted for alignment to the specified standard. **Nuts, washers, or jointing gaskets shall be excluded.**

4. **Sewage Air/Vacuum Break Release Valves with Bias Mechanism -** All valves shall be designed in accordance with the following standard and/or by the Engineer as required: